Tomas Bata University in Zlín
Faculty of Multimedia Communications

# Vizualizace hudby: Srovnání teorií, uměleckých děl a návrh

## Visualization of Music: Comparison of Theories, Artworks and a Proposal

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# SUMMARY

This research's primary objective is to seek, find, analyze, and compare the notable or underrated artistic videos on music visualization in the light of relevant and propose an experimental artwork.

After providing a brief introduction about the terms, history, along with the background, which is composed of categorization and revision for previous academic research, this thesis starts analysing notable short or feature films, animations, and interactive media chronologically that offer high artistic values regarding music visualization. The analysis methodology is mostly based on Zbikowski's Leitmotif, Eisenstein's diagrams, Kandinsky's colour theories, and Michel Chion's audiovisual analysis. The reason why these factors have been chosen is that they are indeed the core of music visualization theories that have been created by artists, directors, and scholars for over a century. Additionally, the music visualization here is limited by classical music due to its high artistic values comparing to other genres and also the intense use of classical music by the theoreticians and artists above. The blockbuster or highly artistic movies and videos regarding music visualization, such as Stanley Kubrick's Clockwork Orange, will be considered as a point of reference along with the important scholars' theories such as Gorbman, Cook, and Adorno.

These analyzes may enable us to see not only the improvements but also the deficiencies in this field. In this way, the creation of a new artistic concept in the light of related artworks and theories can be possible and more aesthetic in the framework of music visualization. Moreover, the findings of comparison and analysis will be converged altogether, and a new artistic concept, in conjunction with the relevant computer graphics-based animation artworks with video game aesthetics, will be offered as the ultimate results of this study.

# SOUHRN

Primárním cílem tohoto výzkumu je hledat, analyzovat a porovnávat významné umělecké animace a filmy o vizualizaci hudby s přihlédnutím k teoriím a dosáhnout nového uměleckého návrhu ve světle experimentálních uměleckých děl.

Po stručném představení termínů, historie a pozadí, které se skládá z kategorizace a revize pro předchozí akademický výzkum, tato práce začíná chronologicky analyzovat významné krátké nebo hrané filmy, animace a interaktivní média, která nabízejí vysoké umělecké hodnoty týkající se vizualizace hudby. Metodika analýzy je většinou založena na Zbikowského Leitmotivu, Eisensteinových diagramech, Kandinských teoriích barev a audiovizuální analýze Michela Chiona. Důvodem, proč byly tyto faktory vybrány, je to, že jsou skutečně jádrem teorií vizualizace hudby, které vytvořili umělci, režiséři a učenci po více než století. Vizualizace hudby je navíc omezena klasickou hudbou kvůli vysokým uměleckým hodnotám ve srovnání s jinými žánry a také kvůli intenzivnímu používání klasické hudby výše uvedenými teoretiky a umělci. Kasové trháky, vysoce umělecké filmy a videa týkající se vizualizace hudby, jako je Mechanický pomeranč (Clockwork Orange) Stanleyho Kubricka, budou považovány za referenční body spolu s důležitými teoriemi vědců jako jsou Gorbman, Cook a Adorno.

Tyto analýzy nám umožní vidět nejen vylepšení, ale také nedostatky v této oblasti. Tímto způsobem může být v rámci hudební vizualizace možné a estetičtější vytvoření nového uměleckého konceptu ve světle souvisejících uměleckých děl a teorií. Kromě toho budou výsledky srovnávání a analýzy zcela konvergovány a jako konečný výsledek této studie bude nabídnut nový umělecký koncept ve spojení s příslušnými uměleckými díly založenými na počítačové grafice s estetikou videoher.

**Contents**

# I. ACTUAL TEXT OF THE SUMMARY

## A. Introduction

In this section, the summary will be revealed in detail. Moreover, objectives, theoretical framework, processing methods, limitations, complications, and the experimental side of the thesis will be clarified briefly.

## B. Current State of the Issues dealt with

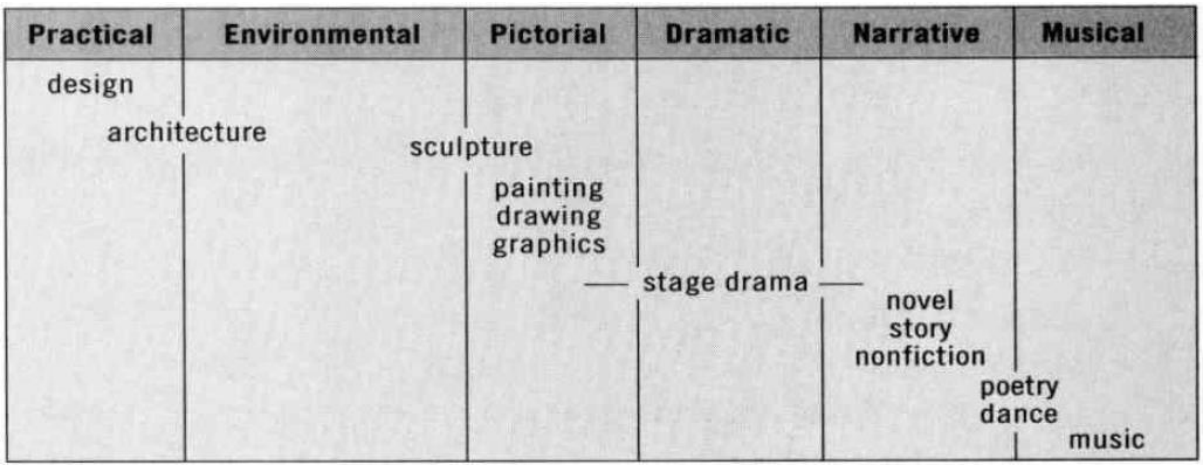
The human infant is born into a sort of "sonorous envelope," says one of the best scholars on visual music, Claudia Gorbman, in her book "Unheard Melodies." The mother's voice, her songs, and maybe the music she plays provide the baby his first auditory environment, and he practices it for the first time by crying as he is born. As we can see, we hear first before seeing. Furthermore, the memory of this fusion with the mother never vanishes, and our illusions are largely accompanied by sounds. She thinks that music accompaniment has both technological and narrative functions: 'to cover projector noise, to mediate between live audience and "dead" mechanically-produced shadows on the screen, to augment moods, and to compensate for the screen's lack of spatial depth' (Powrie and Stilwell, 2006, p. 168). Finally, the use of pre-existing classical music can engage with all three types of code (pure, cultural, and cinematic), thus increasing the music's polysemic range, particularly since Shepherd's argument suggests that Gorbman's 'purely musical codes' are themselves profoundly social and historical in application [7, p. 21].

As Wierzbicki notes, discussion of how film music works—or how it ought to work—dates to before World War I, when columnists for various trade magazines regularly offered both criticism and practical advice to musicians who accompanied "silent" movies. He further notes that the current discussion on how film music works, or how it *seems* to work in particular films or types of films, is fascinatingly complex because It draws its examples from more than a hundred years of international filmic repertoire, and it interweaves strands from a great many lines of argument as in today (Wierzbicki, 2008, p. 4).

Film critic James Monaco refers to the English art critic quote, "All art aspires to the condition of music," and relates this quotation with his spectrum of art table. (Table. 1). As we can see here, comparing to other art forms, "music" has its own space, and music can only be placed under the table of "musical" but nothing else due to its abstraction and spirituality. Other forms mostly try to reach music's spirituality by visualizing it, and renowned art critic Walter Pater provocatively

supports this idea by saying that all art aspires to the condition of music (Gracyk and Kania, 2011, P. 44).

Table 1: A spectrum of the arts (Monaco, 2000, p. 28).




Moreover, James Monaco describes the elements of a film by using musical analogies: he regards film's narrative as a melody, which is organized in rhythm, a temporal element, and he also believes that a film can have a vertical dimension, that is, harmony, through special temporal arrangements of the narrative. (Stilwell, 2000, p. 61). John Whitney investigates this problem further by simply asking What are the essential components of time and temporal organization in poetry, dance, and music? (Whitney, 1980. p. 39). He finds the answer in his software-based music visualization graphics: Metrical order is an important part of the structure of poetry as it is important to the harmonic structure of music. Pitch pattern and rhythmic pattern are interrelated and interwoven in music just as a syllabic, rhythmic pattern and meaning interweave in poetry [8, p. 39]

Today, artistic visualization of music or sound can be currently seen in many contemporary art forms and disciplines. Mostly many artistic short or feature animations and films related to music can be followed on Vimeo, Youtube, National Film Board (Canada), and other similar media platforms. An official website and archive called "centerforvisualmusic.org" are dedicated to visual, experimental, and abstraction on music visualization. Contemporary arts such as Fluxus, sound installation or sculpture, kinematic art, postmodern painting, and optic art are also dealing with this issue in order to create harmony between visuals and music. These art movements are also using video as a medium. Symphony orchestras around the world are playing the classical masterpieces with the accompaniment of video shows, projectors, and interactive media as

"performance." It can be easily observed that even industrial arts, such as many Hollywood movies, are trying to visualize the music in its own way. Aesthetically high music visualization may enable the audience to understand and absorb the content and visuals better. Technological advancements in computer graphics such as fractal simulation and video mapping add another layer to this vibrant field both in terms of technic and artistry. Video games also add their own aesthetic values to music visualization. To sum up, since the invention of cinema, music and visuals have been inseparable elements from each other.

Last but not least, The idea of aligning sound with picture (or the other way round) is not unique to film only. This sensory pairing may occur and affects each other in any given situation of everyday life. The unique quality of transsensoriality in the film is that it can be employed, deployed, and manipulated in artificial ways that do not often occur in the 'natural' form of everyday life. This transcendence of senses metaphorically can parallel Jung's 'Transcendental Function,' a function of the psyche that arises from the tension between consciousness and the unconscious and supports their possible connectivity (Nagari, 2016, p. 35).

## C. Objectives of the Thesis

The central question of the thesis is:

"How different theories and artworks about the visualization of (classical) music have influenced each other regarding experimental films, and in the light of those, is it possible to reach more aesthetic solutions?"

Some minor questions which are related to the primary objective can be found below:

1. What are the notable but underrated movies and animations on the visualization of music, and how could they influence each other and the field?

2. How different points of view such as Soviet, Disney, or independent related animations or movies influenced the visualization of (classical) music and each other as well?

3. Is it necessary and possible to create a new artistic concept with experimental artworks regarding the visualization of music?

4. How to use video game aesthetics for the sake of artistry in music visualization?

## D. Theoretical Framework

The theoretical framework is interlaced with selected processing methods that can be found in the next chapter.

## E. Selected Processing Methods

Below, these methods will be used in this research.

-Comparative: Comparison of selected artistic videos,

-Qualitative Evaluation: Artistic comparison,

-Literature and Movie Review: For the introduction part of the thesis and analysis of the movies,

-Practice-led research: To support the experimental artistic concept,

-Practice Technic: Animation with computer graphics.

As for the film analysing section, a combination of many analysing methods will be used. Since the audiovisual analysis of a movie is complicated due to its complex structure, some of the methods will be used for specific movies while some of the methods for others. For instance, not all the analysed movies have a clear leitmotif, and for this reason, the leitmotif analyzes for these types of films are not necessary. The author prefers using Michel Chion's Audiovisual analysis from his book 'Audio-vision,' where he used it for analysing Bergman's Prologue scene from his movie "Persona" (1965) as the main body of my methodology (number 3,4,5,6,7 below).

1. Background

The author starts his analysis with the background of the film's director. He briefly mentions the director's era, previous works, awards, and his life as a profile.

2. The Plot - Story

The author briefly tells the story or plot of the selected film.

3. Locating Dominant Tendencies – Overall Description

Locating lasting noises that extend through the whole of a sequence, such as ringing church bells, also locating punctual noises that are isolated events such as hammer blows. Identifying the music with the listener's cultural references and making the distinction between music and noise.

4. Spotting Important Points of Synchronization

Locating the important synchronized scenes.

5. Narrative Analysis

What do I hear of what I see? and What do I see of what I hear? General analysis of narration in the framework of sound and visual relationship.

6. Comparison

Seeking the visual forms and textures in the context of music. Here the author also adds Kandinsky's colour theories, where he outlines the musicality of colours in his *Concerning the Spiritual in Art*. Here Kandinsky's explanation of the direct psychic effect of colour, which causes the vibration of the human soul, has no scientific basis but is "founded purely on spiritual experience." (Hoover, 2008, P. 33).

7. Audiovisual Canvas

Overall evaluation and General audiovisual structure of the film. Is it jerky-smooth, sharp-diffuse, regular- irregular, ordered-disorderly?

8. Graphical analysis

The author will briefly analyze the montage in selected films and their relationship with the sound along with Eisenstein's diagrams, if applicable.

According to Eisenstein, there are five types of montages:

Metric montage: Cutting to the next shot no matter what is happening within the image.

Rhythmic montage: Cutting based on continuity.

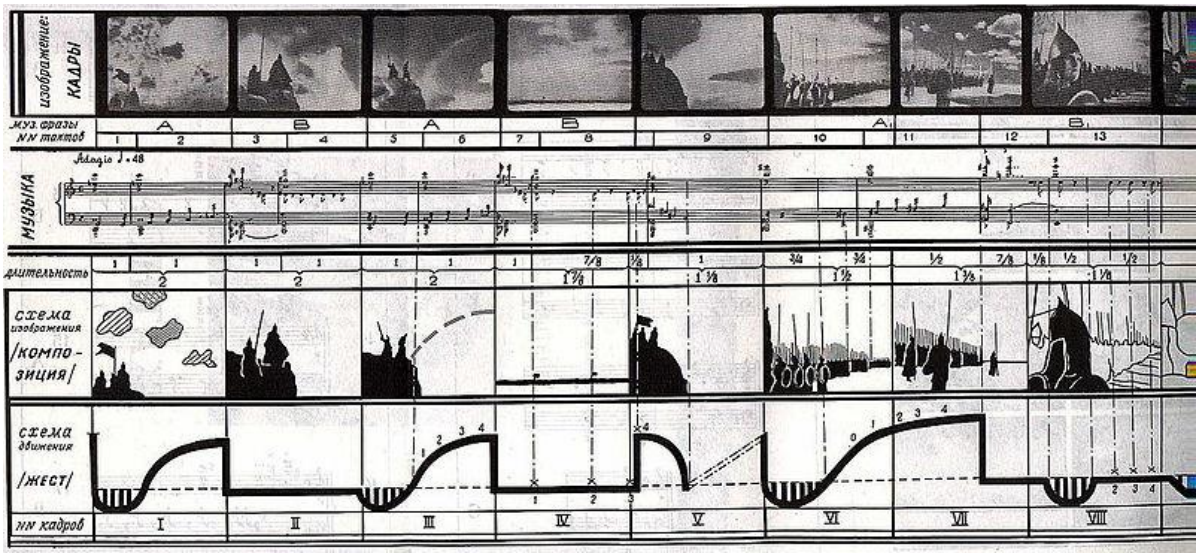
Tonal montage: Cutting depends on emotional integrity.

Overtonal montage: Exaggerated mixture of metric, rhythmic, and tonal montages.

Intellectual montage: Conflict between images based on content to produce new ideas.

Eisenstein also used diagrams and graphics for audiovisual analysis in his movies. His most important original diagram for his Alexander Nevsky movie can be seen below:

Table 2: Alexander Nevsky / Battle on the Ice Scene Diagram (Eisenstein, 1943, appendix).

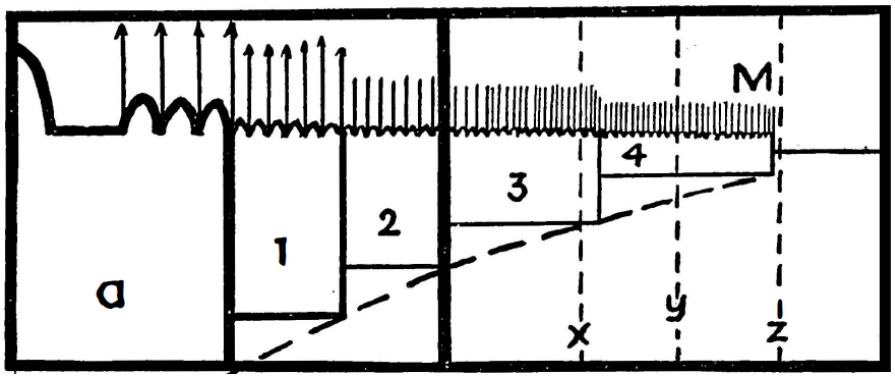



On the table, Eisenstein reveals the new "vertical" factor of inter-correspondence, which arises the moment that the pieces of the sound-picture

montage -are connected. Montage removes its last contradictions by abolishing dualist contradictions and mechanical parallelism between the realms of sound and sight in what we understand as an audiovisual ("vertical") montage. Eisenstein analyzes some specific parts of his diagram (Table.3).

Surely not all the movies here have vertical montage or similar ideas; as a result, the use of this diagram is limited to few movies in the thesis.

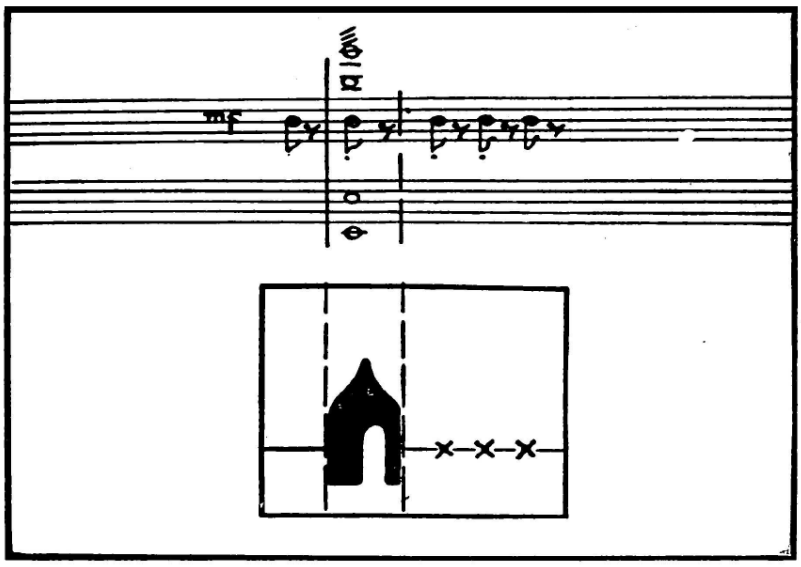
Table 3: Detail from Alexander Nevsky Diagram / Battle on the Ice Scene Diagram (Eisenstein, 1943, p. 183).




Here Eisenstein tries to find a correspondence in the music to that glimpsed cut of horizon x, y, z, and as a result, the abrupt musical break was visualized as a fall. The plastic equivalent to such a sharp break in the music can be assumed under these conditions to appear as an analogous jolt-now not from top to bottom, but perspectively, inwards.

Eisenstein also points to another kind of correspondence between music and picture solved through the same graph-and with the same motion. This is spatial correspondence. This analysis of Shot VIII and its corresponding musical movement can be diagrammed as below.

Table 4: Detail from Alexander Nevsky Diagram / Battle on the Ice Scene Diagram (Eisenstein, 1943, p. 189).

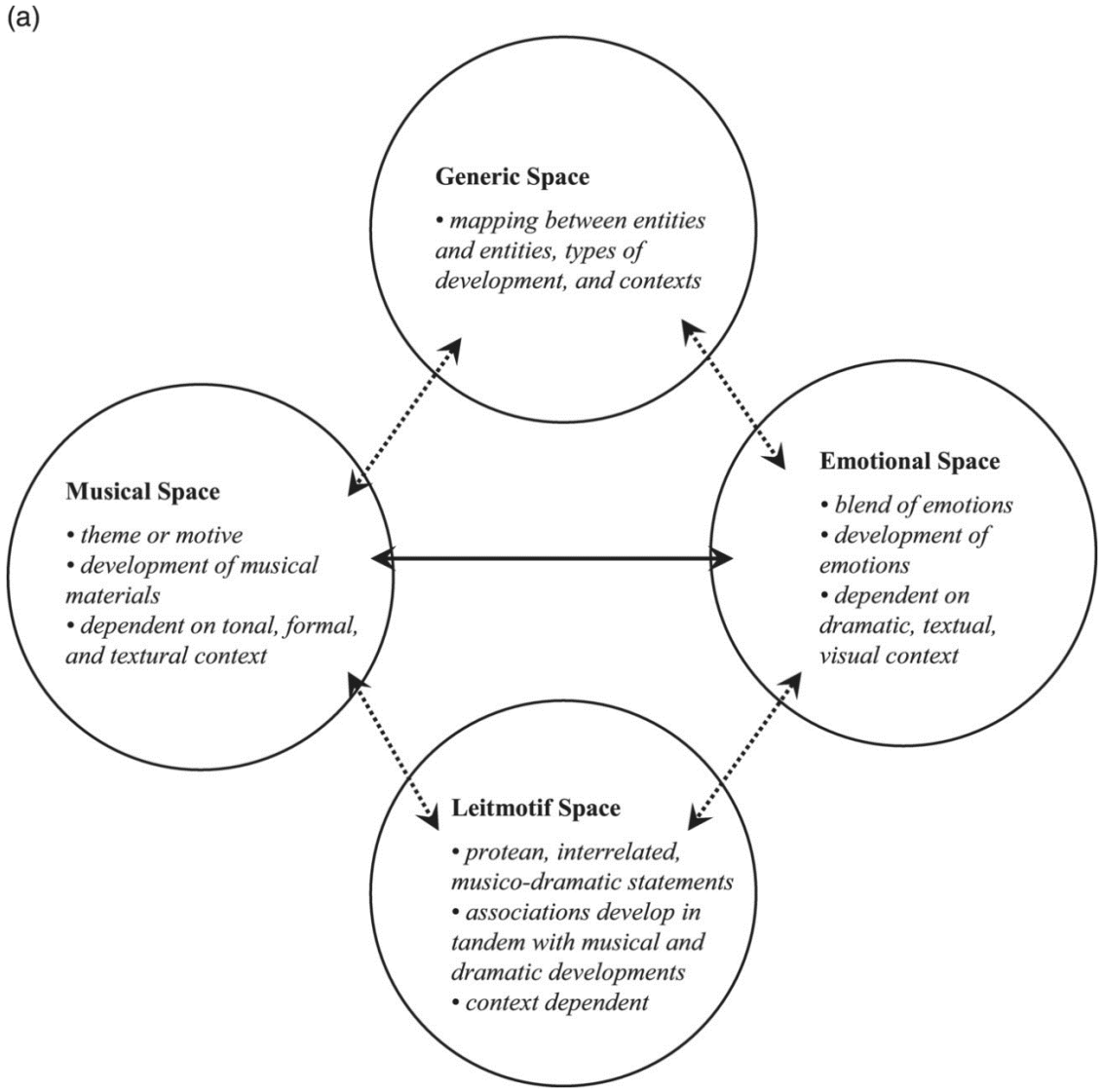


While the diagram analysis can provide a different, graphics-based perspective for the film sound readings, it also provides insights into the double problematic of the technical instrumentalization of the cultural work and technically assisted authorship and reception of time-based media (Tobias, 2004, p. 35).

## 9. Leitmotif

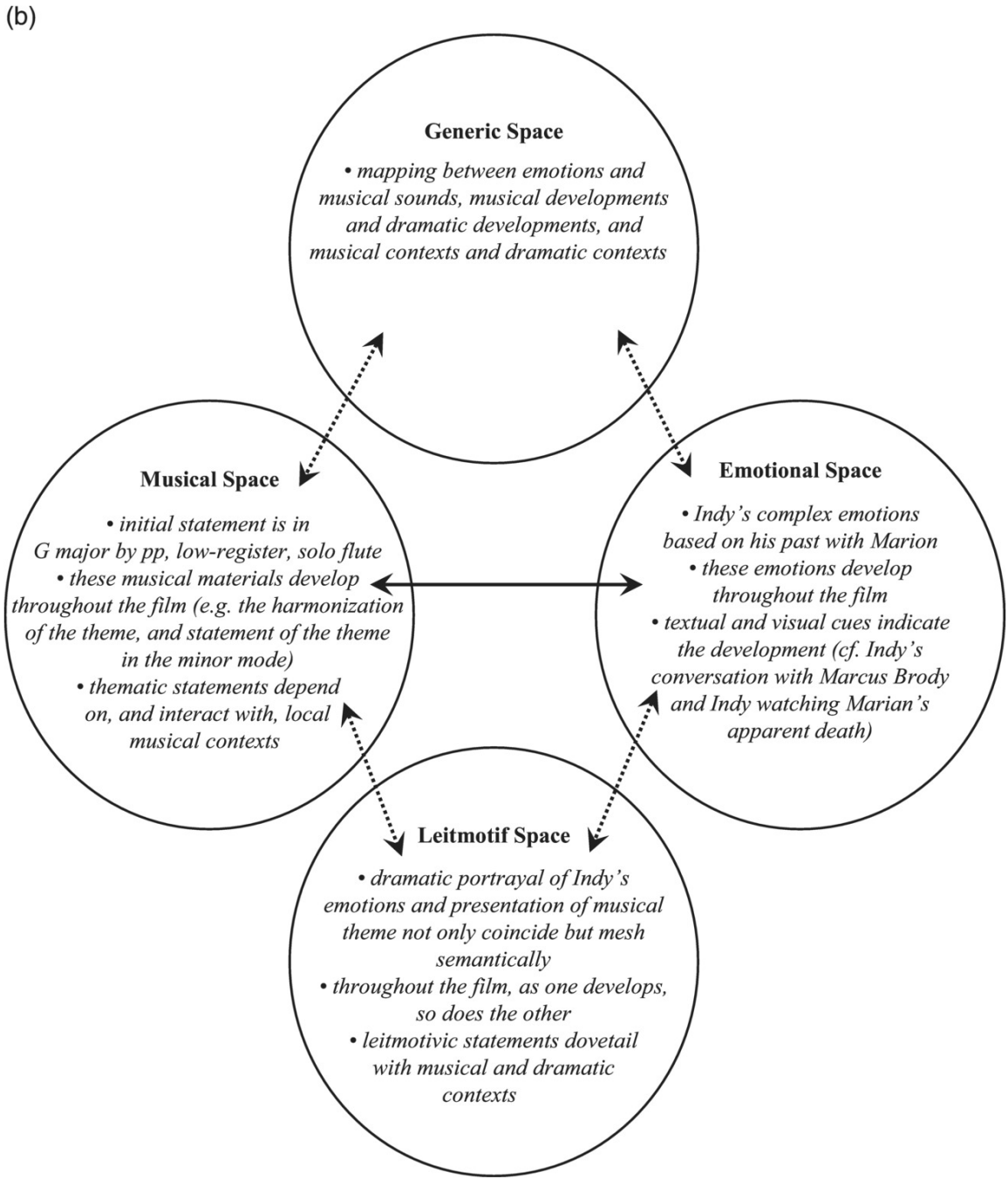
If the film has a distinguishable leitmotif, I prefer Lawrence M. Zbikowski's CIN (Conceptual Integration Network) (Table.5) that provides schematic and precise interpretation for leading motives in films. This diagram includes four sets, and here the combination of musical and emotional readings provides us leitmotif interpretation.

Table 5: Leitmotivic Conceptual Integration Network (CIN) Model (Stull, 2015, p. 12).




Matthew Bribitzer-Stull applies CIN to John Williams' score in Steven Spielberg's Raiders of the Lost Ark for analysing the leitmotif of film's protagonist Indiana Jones' complex emotions (Table. 6).

Table 6: Leitmotivic Conceptual Integration Network (CIN) Model for Raiders of the Lost Ark (1981) created by Stull (Stull, 2015, p. 13).



## F. Experimental Part

Under the main results and findings of comparisons and analyzes, a new artistic concept on the visualization of music will be proposed. This proposal will also be supported by experimental artworks that will be created in computer graphics and 3D animation with the help of video game aesthetics.

## G. Limitations, Hypothesis and Complications

Even though there will be four methodologies for movie analysis, these elements and movies can be interlaced and blurry due to movies' complexity. The term "notable artistic videos" refers to movies, short movies, animations, and short animations here. The popularity of these videos sometimes can also be blurry, and for this reason, the official IMDb list and Film Festival's websites have been taken into consideration with the order of less popularity. In the theoretical framework section, only the written theoretical works, especially only their specific chapters or pages that have mentioned music visualization, will be taking into account for movie analyzes. Because, for instance, not all the chapters of Kandinsky's "On Spirituality on Art" are about music visualization. For the artistic framework section, from short animations to movies, the most distinctive, artistic, important, and related selected artworks will be taken into consideration regarding music visualization. As expected, almost all the theories and artworks deal with classical music as a genre. Thus, only classical music visualization is the main focus here. The blockbuster with highly artistic or cult movies and animations regarding music visualization such as Stanley Kubrick's "Clockwork Orange," Godfrey Reggio's Qatsi Trilogy, or Milos Forman's "Amadeus" will be considered as a point of reference along with the theories. Finally, experimental artworks are only based on 3D animation with the use of classical music.

Questioning the general problem of "What is motion-picture music?" can be found in Moore and Carroll's article based on philosophy. (Gracyk and Kania, 2011. p. 456). However, here, the author will only question the limits of classical music use in the movies.

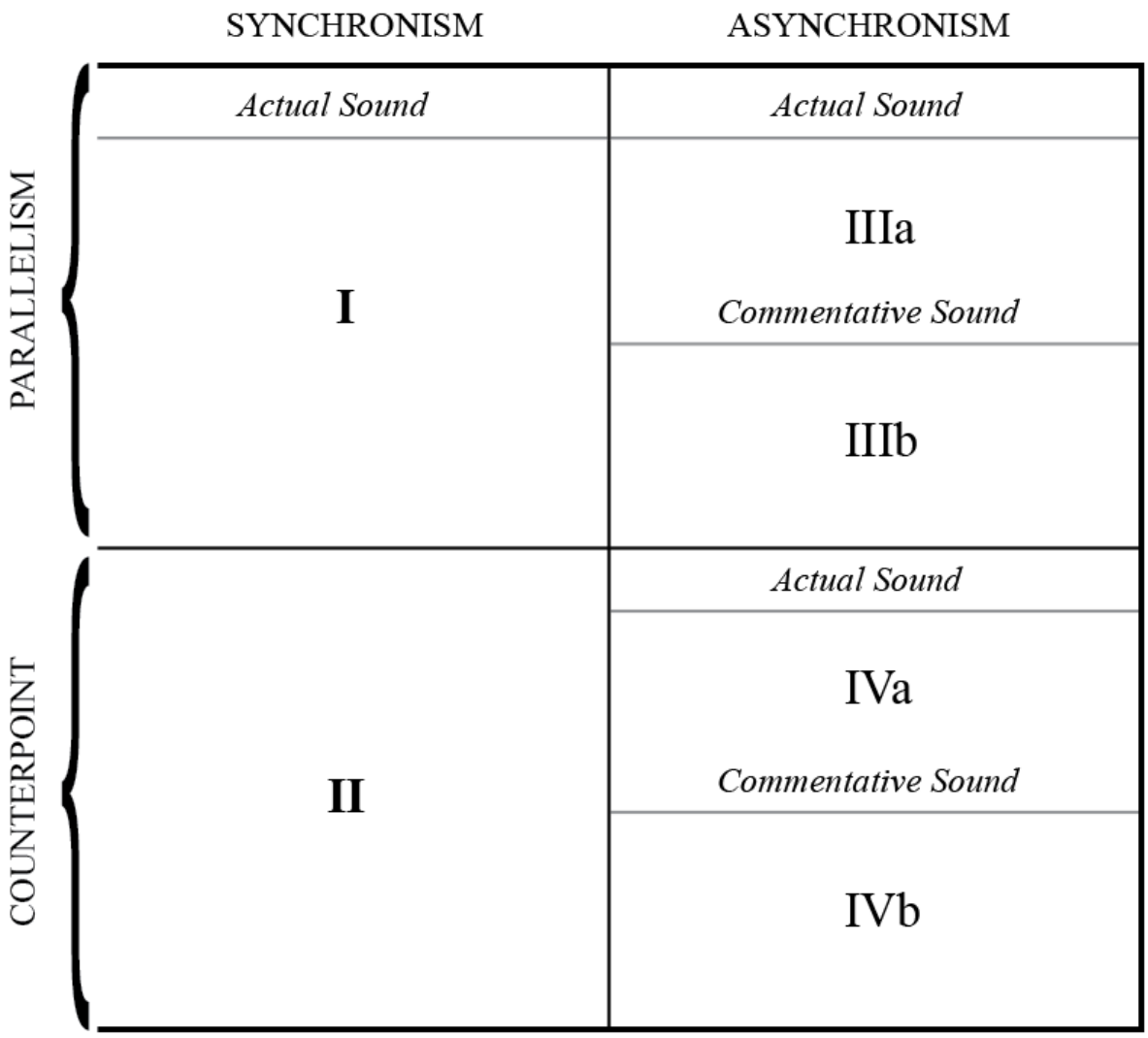
If we need to categorize the selection limitations for the films in this thesis;

1- The films that have never been analysed before,

2- The synchronization between music and visuals must be clear; in other words, one cannot consider the use of another music or music must not serve as a background or mickey-mousing element for that film, because

doubtlessly, crude cadential mickey-mousing may produce music that is incoherent outside of the context of the individual film (Lehman, 2013, p. 5). Surely, synchronization and asynchronization are, as Kracauer puts, ambiguous borderline cases (Kracauer, 1960, p. 112). For him, synchronism-asynchronism and parallelism (sound and image carrying same meanings)-counterpoint (sound and image carrying different meanings) pair but do not assert themselves independently of each other [1960, p. 113]. Moreover, following Karel Reisz's and Gavin Millar's suggestion, these two possibilities may be labeled "actual sound" and "commentative sound," respectively (Reisz and Millar, 1953). Synchronism inevitably involves the former, whereas asynchronism admits both varieties [1960, p. 112]. Here, Kracauer's table "The Four Types of Synchronization," which extensively describes and simplifies the complexity of sound and music used in films regarding synchronization, can be seen below. This thesis will analyze the movies that fall into anywhere of this categorical table (IIIa, IIIb, IVa, IVb).

Table 7: The Four Types of Synchronization (Kracauer, 1960, p. 114).



3- The films must include artistry such as the use of leitmotif, synaesthesia, vertical montage, experimentality, or combination of all,

4- The films must be underrated or unpopular. In other words, they must not be a blockbuster; in other words, there should not be, or there should be, any Hollywood Aesthetic at minimum. What I meant by Hollywood aesthetic is, as Harwood mentions, The Hollywood aesthetic has also been termed classical cutting, also known by its French equivalent 'Decoupage Classique.' Hianetti (1987) describes this style as ' editing for dramatic intensity and emotional emphasis rather than for purely physical reasons' (p. 13-114). (Harwood, 1998, p. 43). On the other hand, for instance, while Hans Zimmer's soundtrack works are aesthetic, he has arguably been the most influential composer in Hollywood since the 1990s, being in near-constant demand for blockbuster tent-poles and prestige pictures alike (Lehman, 2016, p. 1). As a result, block-buster composers are also not being taken into account in this dissertation.

5- The music in the films must be classical music. Classical music here comprises the famous composers' works such as Mozart and Dvorak, but also the individual works or folk songs that have been composed in the format of classical music, the modification or distortion of a classical music piece are counted. Surely, when using pre-existing or classical music in the soundtrack, the modification or distortion is not a 'violence to the original' (Kerman and Tomlinson, 1992, p. 125) but is often a necessity.

The author believes that, despite these limitations, it is hard to sacrifice or select many artworks due to their complexity and their stance between artistry and corniness; moreover, especially Experimental film is a slippery category. For this reason, the author also briefly mentioned some of them for comparison in the analysing section. As McAllister puts it, preexisting, autonomous art music is, by its very nature, resistant to thematic transformations. Unlike originally composed film music, where musicians were expected to vary themes blatantly to fit the mood or setting, the modification of art music was discouraged. He emphasizes that this lack of flexibility, along with the common practice of repeating music several times per film, led to what Altman terms "thematic abuse." (McAllister, 2012, p. 30).

On the other hand, as Volt notes, Introducing classical music in the film, therefore, enables to signify persons, objects, places, situations, ideas, etc. belonging to high(-brow) culture (as opposed to, for example, mass culture), or to the middle class (as opposed to low class). He continues' For example, in Federico

Fellini's *E la nave va* (Italy/France, 1983), it is not necessary to identify each piece of classical music used; yet recognizing the introduced music's status as classical is highly beneficial since music in this film is part and parcel of the artistic image of Occidental Culture or the Old World (Volt, 2009, p. 37, 47). Therefore, movies have their own aesthetic and style, which constitute a substantial part of their cultural meaning (Casanelles, 2015, p. 182).

The author provides links for each analysed movie as superscripts with footnotes that can be seen on related titles or subheads.

## I. Results

The results of this research can be divided into three parts:

- Findings of comparisons and analyzes of the artistic videos.

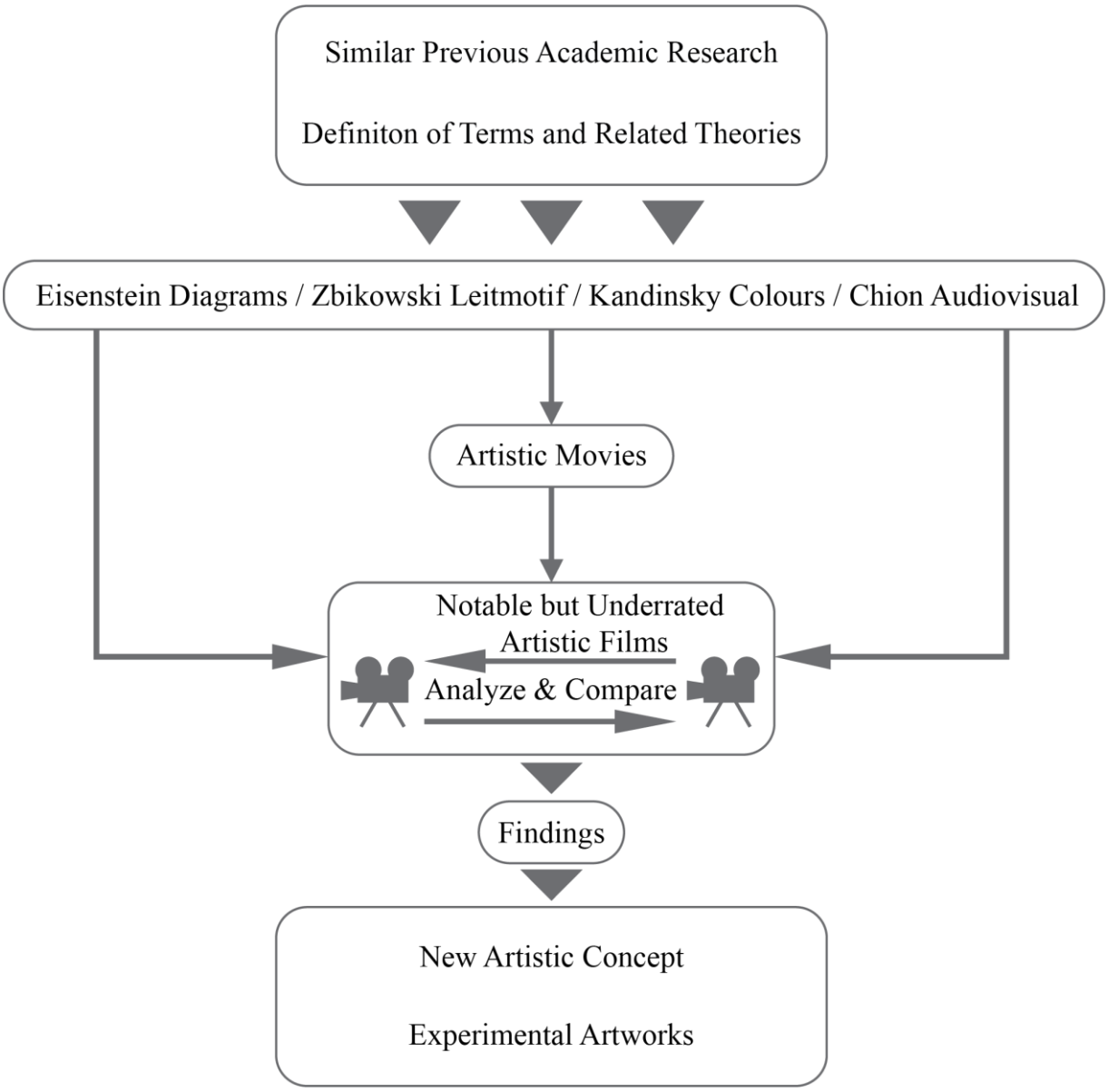
- Artistic concept proposal under the light of findings.

- Experimental artworks which are related to findings and artistic concepts.

## J. Academic Structure

In order to understand the content and pipeline better, a table for the Ph.D. thesis' academic structure has been created, and it can be seen below (Table. 7).

Table 8: Academic Structure of the thesis



# II. CONTRIBUTION OF THE THESIS TO SCIENCE, ART, AND PRACTICE (REASONS)

The 20th century was considered to be the era of modern and postmodern art movements. Among those, many artworks shed new light on the relationship between visuals and music or sound. Serious research about artistic music visualization was carried out in the early 1980s, and they are still being written. Although this field is interesting, few researchers have addressed the issue of comparing the notable artistic videos along with the theories both in the past and present-day and finding the improvements and deficiencies in the field to create something new. Moreover, much research has revolved around blockbusters and ignored the independent short and feature movies on visual music. The author hopes that his research will be helpful and constructive in solving the aesthetical problems regarding artistic music visualization to fill this gap. His work clearly has some limitations due to its immense artistic variations. But at the same time, he tried to put everything together as much as possible for the sake of creating inclusionary research. We have come this far from Kandinsky's abstract paintings to John Cage's "Water Walk." Finding more or fewer connections between them can lead us to new dimensions. The author hopes he could reflect these findings in my proposal and artworks, and he believes the comparison and analysis method could bring along interesting results.

Practically, in the author's 3D animation-based artworks, the author will inherit the elements from Dadaism, Surrealism, Minimalism, Futurism, Steampunk, and Abstract Art by mixing natural, industrial and organic visuals with the aesthetic and absurdity of video game elements together. However, before anything else, the author prioritized the spiritual connection between my subconscious and music; in other words, the forms that music created in his mind concerning to boost artistry and individuality. The author only visualized classical music regarding its limitations and its high artistic value. Technically he used the most popular computer graphics software such as Autodesk and Adobe. The author tried to minimize visual effects, and in the meantime, data was used to avoid showing off and also timesink. To sum up the contributions;

- Briefly reviewing and analysing previous research to see what has been done in the past,

-Comparison and analysis of unknown artistic videos and bringing them to the surface in order to see improvements and deficiencies from a different point of view,

-Interesting findings and final unique inclusionary evaluation,

-A new artistic proposal with the help of relevant experimental artistic products.

-Filling a sore gap in the literature, music, sound, and filmmakers.

# III. CONCLUSION

The organization of the contents of this research also reflects the historical development of music visualization art. Comparing the unknown artistic movies under the light of pioneers' theoretical works can be an approach that is as scientific as possible. This comparison also enables the artistic side of the thesis to be built. The creation of new knowledge after colliding with many different theories and artworks can lead to the genesis of a new artistic concept with experimental artworks. So too, analysing pre-existing film music is a kind of archaeology of the undertone, historically and materially bound, that aims to work through the layers of connotations to reach the effects lying under the concretions of time (Stilwell, 2000, p. xix).

## 1. PREVIOUS SIMILAR ACADEMIC RESEARCH

The general books on film music, whatever else they may do, always address the question: What is music's function in film? (Neumeyer, 1991, p. 18). There is also much academic research related to artistic music visualization. As expected, most of the thesis is related to specific themes regarding limitations. Even though it is hard to categorize them regarding music visualization, a rough list can be created below.

- Historical Development

- Emotional and Psychological

- Aesthetically, Mystical and Philosophical

- Scriabin, Synaesthesia, Leitmotif, and Colour

- Influence on Painting

- Film, Media, or Animation Scoring

- Technological and Experimental

- Complex or Compact

-Semiotic

-The music or sound used in the films of Alfred Hitchcock, Stanley Kubrick, Ingmar Bergman, Jan-Luc Godard, David Lynch, Andrei Tarkovsky, and many similar popular independent or Hollywood blockbuster directors.

The author found approximately 40 thesis, which is similar to my research. In this chapter, the author will briefly mention some of the most important, inclusive, and distinctive research, starting with the most relevant ones to my thesis in the order of relevance. These academic works will also be used for movie analyzes. The ones which the author did not mention here could be found in the Bibliography section if they were used as a reference.

The author would like to start with Sofia Guevara's "An Analysis of Disney's Fantasia Opening Sequence" (2016, University of Barcelona, Spain), where she analysisToccata and Fugue in Dm sequence of Disney's Fantasia (1940) by using Chion's masking method with the support of Eisenstein based graphics. For that, she measures the luminance of the image by using the YC Waveform tool of the Adobe Premiere Pro CS6.

Aimée Mollaghan's Ph.D. thesis "The musicality of the visual music film" (2011, University of Glasgow, UK) is another most similar one to my research due to its content. Aimee's work compares movies, paintings, and theories regarding music visualization by taking art history, music theory, philosophy into account.

Gascia Ouzounian's Ph.D. thesis, "Sound Art and Spatial Practices: Situating Sound Installation Art Since 1958" (2008, University of California, USA), resembles my thesis because of its structure. This thesis brings unknown sound installations from the late 1950s to the surface by analysing them one by one. This dissertation examines these sounds installations concepts from the social, cultural, and political points of view.

David Kershaw's 526-page Doctoral Research "Tape Music with Absolute Animated Film: Prehistory and Development" (1982, University of York, UK) offers a wide range of investigation through the visual music art history from Kandinsky to computer arts. This is followed by a survey of those few absolute

animated films realized in the nineteen-twenties, such as Viking Eggeling, Hans Richter, and Walther Ruttmann, who are also related to Bauhaus and Constructivist spirit. Avant-garde experimentations by Oskar Fischinger, Harry Smith, and the Whitney brothers are also studied. In the end, Kershaw examines his own film "Opus 1" in the framework of music visualization arts and historical development. Many visuals, sketches, and notes such as Eisenstein's, Scriabin's, or Satie's can also be found in the appendix section of the research. This dissertation is also one of the first and most extensive works regarding its publishing date and the pages it offers.

Emily D. Robertson's Master Thesis "It looks like sound: Drawing a History of Animated Music in the Early Twentieth Century" (2010, Maryland University, USA) provides a general outlook for animation art in the framework of music. From Edison's machines to Oscar Fischinger and Soviets, Robertson's research compiles the techniques used in animated sound. It also explores the process of its creation, adaptation, and decadence. By doing so, it reveals an important chapter in the lesser-known early history of modern sound.

Julie D. Harwood' Research "The construction of meaning in Hollywood and music video editing aesthetics: A comparison between the pre-television and music television generations" (1998, University of Windsor, Canada) examines the differences between the conventional Hollywood aesthetic and the music video aesthetic, with a focus on editing as a formal feature.

F.N. Mane's Diploma in Fine Arts Thesis "The Musical Phase of Modern Painting" (1969, University of Canterbury, New Zealand) is maybe the oldest one regarding painting and music. This research offers a historical review and analysis of modern and even postmodern art movements regarding musical painting such as Impressionism, Post-Impressionism, Symbolism, Fauvism, Cubism, Orphism, Futurism, Expressionism, and Dadaism. In addition to these, Mane also put an appendix named "Colour Music," which examines the artworks of Scriabin, Korsakov, Schönberg, and Bliss in the light of Newton and Castell's colour theories. Last but not least, in the "Coda" section, Mane also touches upon Stockhausen and Cage's radical compositions. As a result, this thesis does not offer something new, but if we take this research's publishing date into consideration, this is maybe the first inclusionary research ever written.

Terence Dobson's 302-page great Doctoral Thesis "The Film-Work of Norman McLaren" (1994, University of Canterbury, New Zealand) is completely dedicated to notable music visualization artists and abstract animator Norman

McLaren's artworks in the context of his objectives. The thesis is divided into three parts, based on chronological divisions in McLaren's life.

Andrew J. Reitter's Honors Degree Thesis "From Alberich to Gollum: Hollywood's Transformation of the Leitmotiv (2013, University of Delaware, USA) examines the difference between the reminiscence motive and the leitmotiv, two similar motivic concepts from the nineteenth century, and ultimately discuss the misattribution of the leitmotiv method to Wagner and tracks the use of musical themes in the films of the featured composers of the time such as Joseph Breil, Max Steiner, and Erich Korngold.

Nicolas Nelson's Master Thesis "Synaesthesia, Harmony, and Discord in the Work of Wassily Kandinsky & Arnold Schoenberg 1909-1914" (2015, University of Buckingham, UK) sets out to investigate the early twentieth-century crossover between painting and music, with specific reference to the work of Wassily Kandinsky and Arnold Schoenberg between 1909 and 1914. Broadly speaking, to appreciate how two different artistic entities in art and music could be intertwined to produce a unified marriage of aesthetic principles and concerns sets the stage for a more detailed focus on the two aforementioned pioneers of abstraction.

Emilie Hurst's Master Thesis "Adventures in Time and Sound: Leitmotif and Repetition in *Doctor Who"* (2015, Carleton University, Canada) explores the intersections between repetition, leitmotif, and the philosophy of Gilles Deleuze in the context of the BBC television series *Doctor Who.*

Matthew J. McAllister's Doctoral Thesis, "A Spectacle Worth, Attending to The Ironic Use of Preexisting Art Music in Film*"* (2012, Florida State University, USA), investigates classical music use in Hollywood movies in the framework of irony. In this sense, detailed analyzes of movies such as Elephant (2003), Misery (1990), Apt Pupil (1998) forms the body of the thesis.

Michael Hill's master thesis "Slave to the Rhythm: Animation at The Service of The Popular Music Industry" (1995, University of Technology, Sydney) establishes the emergence of a new aesthetic of animation set to music and reviews theories on animation and music video. As for the result, the research model is applied to three important videos: Peter Gabriel's "Sledgehammer," Dire Straits "Money for Nothing," and A-ha's "Take on me."

Last but not least, scholarship in this area has expanded rapidly as specialists in musicology and Film Studies have explored it. A considerable number of articles began to appear in the late 1990s (including, among others, the work of

Neumeyer, 1997, 2000b; Stilwell, 1997a, 1997b; Gabbard, 2000), and the vitality of the area is further exemplified by the publication of recent anthologies (Donnelly, 2001; Dickinson, 2003), as it is by volumes which attempt to give overviews of complex arguments (for example, Davison, 2004, and Duncan, 2003). (Stilwell and Powrie, 2006. p. Xiii) and finally, Frank M. Lehman's related doctoral thesis and articles can be found in the bibliography section.

# 2. DEFINITION OF TERMS

*Arpeggio:* Production of the tones of a chord in succession and not simultaneously (merriam-webster.com, 2020).

*Blockbuster:* The contemporary blockbuster is symptomatic of a seismic shift in the industry's commercial practices and economic fortunes (Mcgill, 2008, p. 41).

*Contrapuntal*: Chion's explains this term as "Anempathetic effect." It is most often produced by music, but it can also occur with noise—when, for example, in a very violent scene after the death of a character, some sonic process continues, like the noise of a machine, the hum of a fan, a shower running, as if nothing had happened. Examples of these can be found in Hitchcock's *Psycho* (the shower) and Antonioni's *The Passenger* (an electric fan) (Chion, 1990, p. 9).

*Coda:* A piece of music at the end of a longer piece of music, usually separate from the basic structure (Cambridge.com, 2020).

*Fanfare:* A loud, short piece of music played on brass instruments, often to announce something important (Cambridge.com, 2020).

*Leitmotif:* The leitmotif, in its simplest terms, can be described as a recurring compositional motif in an opera or film, which represents a specific person, idea, or emotion (Dictionary.com, 2020).

*Mickey-Mousing*: Referring to the situation when music mimics every detail of action on screen, which may be used as a comic device (Walus, 2012, p. 85).

*Polyphonic:* In music, the simultaneous combination of two or more tones or melodic lines (Britannica.com, 2020).

*Synaesthesia:* An involuntary joining in which the real information of one sense is accompanied by a perception in another sense (Dann, 1998, p. 5). The concept

of synesthesia indicated to many European artists of the late 19th and early 20th centuries that art and music should strive to fuse together as one (Bowens, 2008, p. 11).

*Tenuto:* To hold a tone or chord firmly to its full value - used as a direction in music (Merriam-webster.com. 2020)

*Vertical montage:* The elemental part of Eisenstein's film theory. Eisenstein wishes to retain the horizontal juxtaposition of the visual image and to add to these the vertical component of sound with image. (Robertson, 2019, p. 43).

# 3. ANALYSIS OF THE NOTABLE MOVIES AND ANIMATIONS ON MUSIC VISUALIZATION

In this film analysing section, which forms the body of this dissertation, the author divided the artworks into four categories; Soviets, Indie Animations, Short or Feature Films, and Interactive Media. In the Soviet section, the animations are entirely based on communist propaganda, and this feature separates them from individual works in the indie animations section. Shorts and feature movies have been placed in their division. Finally, in the interactive media section, films that were accompanied by the live orchestra with a projector or objects have been analysed. For these reasons, the author believes this categorization is inclusionary and logical.

## 3.1 Soviet Animations

In the early years of the USSR, the work being done by Voinov, Scholpo, Avraamov, and others in the Soviet laboratories were most similar in purpose and execution to that being accomplished simultaneously in Germany by Pfenninger (Robertson, 2010, p. 42,), Fischinger and in Canada by Mclaren; music visualization with abstract elements. 1929 saw the release of Mikhail Tsekhanovsky's *Mail* (Почта), an animated adaptation of Samuil Marshak's Soviet poem, which tells the story of a letter addressed to the writer Boris Zhitkov. And it became one of the first Soviet sound animations when a soundtrack was added to it in 1930 (Pikkov, 2018, p. 109). Later on, the artistic synchronization between the images and sound based on a narrative reached its peak during the Cold war period in USSR, thanks to Soviet propaganda animations. Two composers in this era became prominent; Prokofiev and Shostakovich in Soviet Russia have all made film music that was more than a worthy contribution to film

drama (Wierzbicki, 2009, p. 152). The remarkable collaboration between these composers and Sergei Eisenstein produced many masterpieces such as “Alexander Nevsky” and “The Ten Days that Shook the World” regarding music use. Furthermore, in the light of Eisenstein’s theoretical contributions, animism can be seen as an essential element to the theorizing of animation, and it may also be applied to the theorizing of music (Hill, 1995, p. 11). For instance, an animation idea can be seen in three lion statues in Potemkin Battleship as they come to life with three successive shots (sitting, rolling up, and standing). However, before the Soviet film industry could effectively deal with the call to Socialist Realism, it had to first contend with the enormous popularity of imported American and Western European films (Bartig, 2008, p. 19). Soviet animated films both helped to fill this gap and also created their own aesthetics based on Socialist propaganda with the Soviet animators such as Kotyonochkin, Stepansev, and Aksenchuk. While their early animations were under the influence of Disney style in general, their late propaganda works demonstrated great artistry regarding music visualization despite the fact that as a constantly evolving and ill-defined doctrine, Socialist Realism in the 1930s and 1940s can be understood more as a tool available to squelch autonomous aestheticism rather than as a guiding beacon for artists (Bartig, 2008, p. 10). On the other hand, as Joe notes, it is inevitable that when music has to compete with a popular cultural product such as film rather than other areas of high art such as poetry, the competition becomes highly ideological (Stilwell and Powrie, 2006, p. 71). To sum up, After the end of the war, the animation industry recovered and continued to find inspiration in the world of fairy tales and folklore, spicing the traditional narratives with ideological or didactic messages (Pikkov, 2016, p. 23)

As Brown notes (1994) notes, "dramatically motivated musical backing" that would characterize Hollywood films (Brown, 1994, p. 14). But in Soviet films, the sound would be endowed with an organizing or structural function (Gillespie, 2003, p. 473). The most distinctive element in the Soviet propaganda animations is inevitably what Eisenstein and his Soviet colleagues in 1928 called “contrapuntal” or “asynchronous” music, what French theorist Michel Chion in the 1980s called “anempathetic” music, what British musicologist Nicholas Cook in the late 1990s described as music that “contradicts” or “contests” the filmic image. (Wierzbicki, 2009, p. 228). In this regard, I selected Stepansev's “The Pioneer's Violin“ (1971) and Aksenchuk’s “Plus Electrification“ (1972) for the analysis due to their artistic montage, narrative, and synchronization, which differ them from other Soviet propaganda animations. For the folk song analysis in Soviet films, I recommend David C. Gillespie’s *The Sounds of Music: Soundtrack and Song in Soviet Film* (2003).

### 3.1.1 The Pioneer's Violin[1] (1971)

1. Background

Awarded Soviet animator Boris Pavlovich Stepansev's (1929) Disney-style music visualization can be [1]observed in his animation "The Nutcracker" (1973). This work is also an episode from Mikhail Baryshnikov's famous "Stories from My Childhood" TV series (1998), and hence the name, it visualizes Tchaikovsky's "The Nutcracker" (1892) as a fairy tale. Stepansev's version differs from the original story, but this remains the second most important work in the artist's oeuvre regarding music visualization. Two years before animating "The Nutcracker," Stepansev released his "The Pioneer's Violin" (1971) (Fig. 1) as a Soviet propaganda animation that tells the tragic story between a Nazi tanker and a violinist Soviet child. The dialog between these two is entirely based on the artistic use of music and distorted classical music visualization. Thus, this animated film deserves to be analysed, thanks to Russian composer Mikhail Ziv's (1921) soundtrack work for the film that completes the director's artistry.

*Figure 1: Scenes from "The Pioneer's Violin" (1971)*

2. The Plot – Story

The animated film does have a long opening credits scene. It starts with an animated flame with credits. We see a child playing a loud, passionate melody with a violin for a short time while the film's name appears on the screen. The child keeps playing the violin inside the house in the yellow room light, and seemingly it is nighttime. When it dawns and brightens, the scene is filled with flowers, hills, trees, and shiny stars in the sky. In the end, we see a half yellow and half dark sky that contains the Sun and starts that set the location where the

[1] https://www.youtube.com/watch?v=A-4g-HS99Jo [Accessed 17 September, 2021].

animation takes place. As the fairy tale-looking scene sets a peaceful view, white planes enter the scene from far left in the sky just after the music fades out. In the next scene, the planes cover the Sun, and they dive into the town. Explosions occur in the complete dark. In this complete darkness, a child figure lays on the ground with his violin next to him. Desperately he grabs the violin and rolls up as he looks around. An animated tank approaches him. A Nazi soldier plays a popular childish melody from a Viennese folk song, *"Oh du Lieber Augustin,"* with his harmonica on the tank. He tries to drive the child with his tank into a corner. While this is happening, he also casually fires upon the child with the tank's machine gun. The chase ends when the soldier finally makes the child stop at the corner.

Here the tanker fires his machine gun around the child's for the last time, blows his harmonica, and finally makes the child cry. Tanker wants the child to play his melody with his gestures. Tanker plays the melody one more time. As a reply, The child stands up, frowns, pans his head, and suddenly plays the theme of *"The Internationale"* for a short time right after the harmonica stops. He is hit by the machine gun, the strings of the violin, along with the violin, scatter around the child. "The Internationale" plays one more time while we see the destroyed violin with its detached strings on the ground. The silhouette of the location is shown. It is a hill with some ruins with the red and yellow sky in the background. Sky's brightness change is synchronized with horns in the fanfare. Later on, fireworks are seen in the red-dark sky; one piece of fireworks falls on the ground and becomes a flower. Other fireworks pieces fall, and the ground rapidly fills with flowers. The fairy-tale environment comes back; the same child, in the beginning, plays the violin while other kids are gathered around him. In the middle of the children, a flame is emitted from a caverned violin shape on the ground. Children look sad and shocked, their red neckwear together with the fire in the middle wave due to the strong wind. Music and the fairytale-like environment fade out at the same time, "the end" text appears.

## 3. Locating Dominant Tendencies – Overall Description

The introduction and final scenes of the film are dominated by melancholic violin solo; in other words, the symmetry is based on violin sound while the harmonica takes over the body of the film by playing "*Oh du Lieber Augustin*." However, the peak of the film is marked by a violin solo as the victim plays *"The Internationale"* and the gun sound with ruptured strings of the violin right after the death of the violinist child. Last but not least, the melancholic violin solo in the final scenes is underlined by the children's choir to increase the tragic effect.

Stepansev creatively blends the non-diegetic and diegetic sound. After the peaceful and melancholic violin solo introduction, the first noise we hear is the Nazi fighter aircraft's diving and bombing sound. Bombing sound is strengthened by discordant piano sound. While the tank tread sound is an indicator of the tank's movement, the machine gun is represented by drum trills. The tanker and child never talk to each other, but with little vocalization, the director sets the characters in a minimalist way; the tanker sighs ironically as a response to the child's innocent crying.

4. Spotting Important Points of Synchronization

In the opening scene, the soft violin melody is accompanied by a violin pizzicato. Here Stepansev artistically connects the warm and friendly feeling of the violin solo and the feeling of being home as the vibration of violin pizzicato creates a house sketch. The sketch is filled with colours slowly and sways along with the music childishly. After the bombing scene, low-pitched moody winds accompany the child's despair as he grabs the violin and rolls up. He looks around; sinister drum sounds with timpani trill indicate an imminent danger as well as the resonation of isolated, empty wrecks.

The tanker's machine gun sound is represented by drum trill and synchronized with the "*Oh du Lieber Augustin*." While he plays the last tune with his harmonica as he moves the machine gun synchronized with the Viennese folk song's tune. As the chasing speeds up, timpani trills start accompanying the harmonica melody, and the music gets faster.

In the murder scene, The detached string sound is represented by the pizzicato sound. The camera rotates around on the dying child; he attempts to reach the violin, completes the melody of *"The Internationale"* with pizzicato, and is immediately shot by the soldier.

Finally, towards the end, the bell sound represents the fall of flowers as well as their growths right after fireworks with fanfare horns accompaniment.

5. Narrative Analysis

The narration is almost completely based on musical dialogs between the tanker and the violinist child. The movie has a symmetrical structure, underlined by the tragic violin solo in the beginning and end. Between these, there is the contrapuntal and musical story with the peak as the child is hit by a machine gun. As a result, the narrative flow follows the A-B-C-A formation; C as the peak, B

as the main story, and two ‘A’s are the subsidiary stories in the beginning and final.

## 6. Comparison

In the introduction of the film, Stepansev carefully uses soft colours with the fairy-tale illustrations, and here the painting technic is similar to Pointillism that was developed by the Neo-Impressionist painters Georges Seurat and Paul Signac (1886). The scene mostly contains yellow, green, and blue tones.

In the chasing scenes, the shape of the machine gun and turret resemble clarinet or other wind instruments more than a lethal weapon. Here the harmonica melody becomes non-diegetic as he uses the machine gun as a music baton; he imagines that he is conducting an orchestra. Finally, in the end, the director shows us the neckwear and fire consecutively for us to create a connection between them regarding the content and form.

Red and grey are the two main distinctive colours, as the first represents passion and communism, while the latter stands for death, war and Nazis. Violin is the most important key object since the events unfold around it. All of these remind us of Francois Girard's movie "The Red Violin" (1998), which tells a story of a red violin in a musical way. In *The Red Violin*, the violin, though inanimate, has been referred to in film reviews as the main character of the film. As illustrated by classic psychological research of Heider and Simmel (1944) on social attribution, humans naturally personify inanimate objects (Cohen, 2002, p. 221).

Another notable element is the similarity of the shapes of the tank and the violin. In the chasing scenes, Stepansev shows us the child and tank from bird view to give us a glimpse of this resemblance, which is an element that increases the irony and dramatic effect in the film. Form overweights colours in the chasing scenes as the tones are almost dead or very low saturated while the lines are jagged and thick. Thus, here the form is the outward expression of its inner meaning [8, p. 47]. In any event, sharp colours sound stronger in sharp forms [8, p. 46] as the jagged lines are represented by sharp horns in the film. As a result, despite many mickey-mousing scenes in the film, especially in the chasing scenes, the contrapuntal use of music and visual elements cover the clichés of the movie and make it an artistic work. Moreover, Michel Chion’s consideration that Mickey-Mousing ‘plays a more important role in [the] capacity of aiding the apprehension of visual movements than in focussing on its own substance and aural density (Chion, 1994, p. 122).

Audiovisual elements in the film also increase the cataclysm incident since, as Insdorf underlines that the Holocaust experience can be expressed or approached through disorienting camera angles and movement, heightened lighting, distorting visual texture or colour, stylized acting, contrapuntal soundtrack or music, and unconventional narrative structure (Insdorf, 2002, p. 43).

## 7. Audio-visual Canvas

Right after the bombing, the textural tone of the film dramatically changes. In the complete darkness, the violinist child lays on the ground with his violin next to him. Here the first thing we observe here is the changes in illustration style. Now the soft and vivacious fairy tale pointillist colours are long gone. Instead, we see low saturated or almost grey tones that are confined by jagged and thick contours. Debris of war is hardly seen in the background. This dramatic change is surely strongly connected with the content.

The general idea of the film is a reminder of Kubrick's Full Metal Jacket, where the end of which battle-seasoned American soldiers sing the Mickey Mouse Club song as they march through a devastated and still-smoking Vietnam landscape (Emmett, 2002, p. 6) as an irony. Here the words equate Mickey Mouse and the US government in an iconic summation of the film's devastating exposé of the horrors of war: 'Who's the leader of the club that's made for you and me?'. In Pioneer's violin, this idea is converted to Nazi- Jewish relationship with the Viennese song "*Oh du Lieber Augustin*" [6, p. 6]. Ultimately the power of music or music video to effect material change is limited: when faced with the raw power of the barrel of a gun or a tank, it is as impotent as any other art, regardless of its capacity to collectivize [6, p. 136]. As a result, the difference in the way these two popular melodies are treated in these scores is that they are given more denotative power.

## 8. Leitmotif Analysis

In The Pioneer's Violin, the most important scene is the murder of the violinist child while he was playing *"The Internationale."* Are the violinist child who plays an innocent melody in the opening and final scene also the one who was murdered? Maybe yes, and maybe not. What matters here is that *"The Internationale"* is paired with the innocent melody. As a result, these two completely different music pieces are the leitmotif of children in the film. It is not

so hard to take the message of "Socialism is innocent and peaceful" in the context. The short but effective use of *"The Internationale"* at the peak of the film and its immediate connection to the innocent melody strengthen the main message of The Pioneer's Violin. In fact, both *"The Internationale"* and the innocent melody are not childish. The childish and famous melody is heard by the soldier's harmonica by someone who is supposed to be serious as his a man of military. Thus, the leitmotif use here is contrapuntal regarding the content. The general leitmotif structure of the film corresponds to Stilwell and Powrie's ideas. As a note, Popular songs in these films are used as 'topical leitmotifs,' where the common style of several pieces is associated with a character or narrative situation. In these films, then, the popular-song score draws upon the extra-cinematic competency of the audience to derive meaning within the film (Stilwell and Powrie, 2000, pp. xvii). The melodies for both characters can be seen below.

Table 9: Notes of the main melody of "Oh du Lieber Augustin" as the leitmotif of Nazi Tanker.

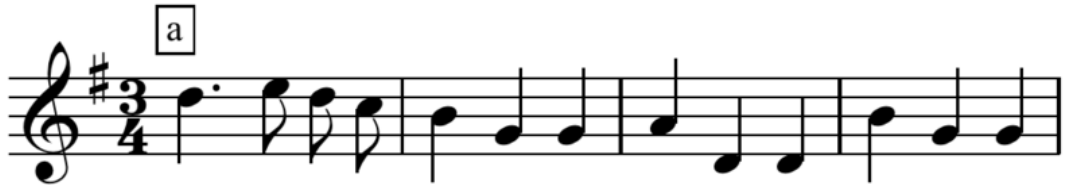



Table 10: Notes of the main melody of"The Internationale" as the leitmotif of Jewish violinist child.

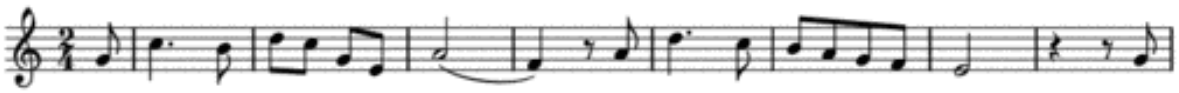
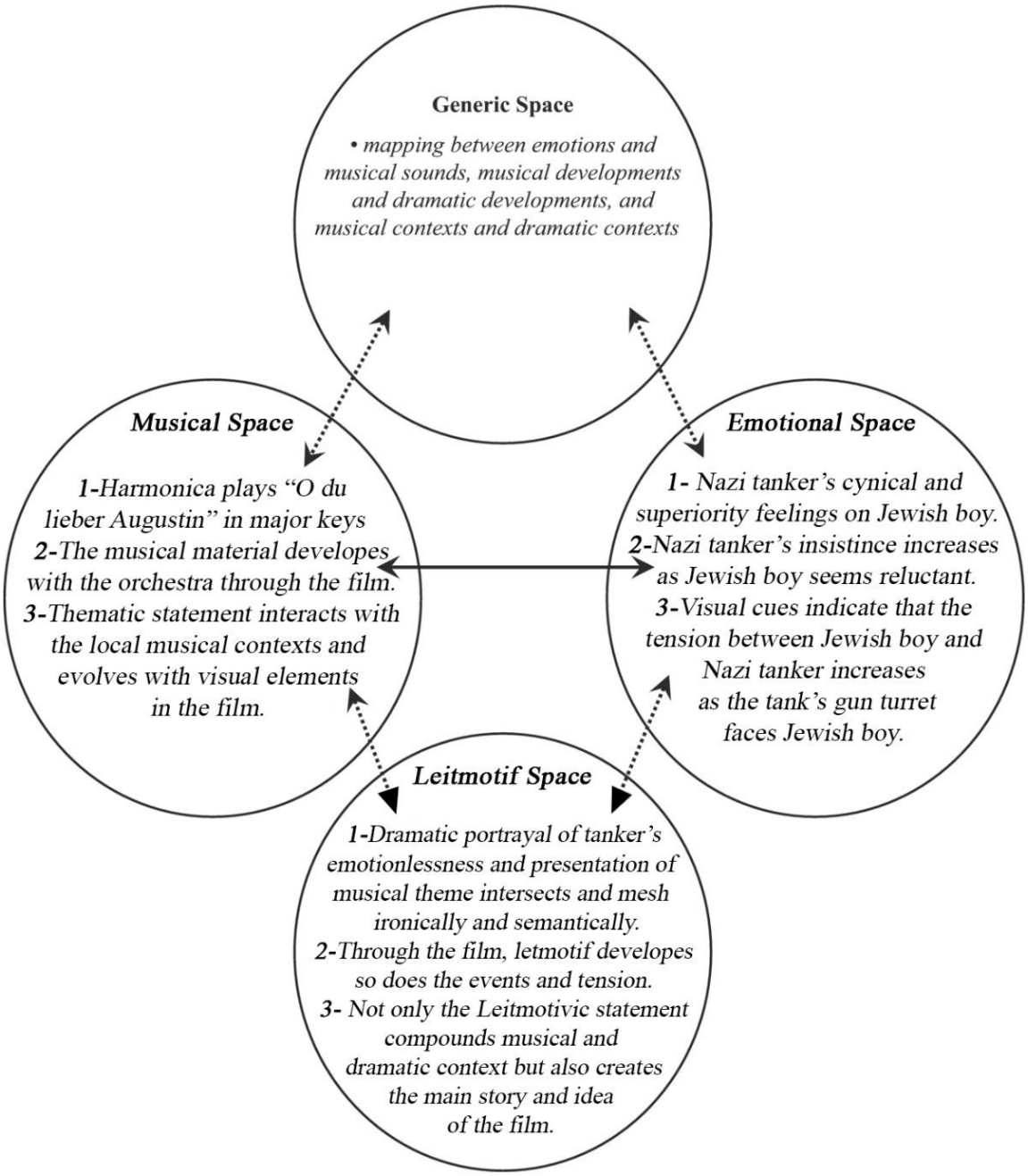


Table 11: In the light of this analysis, CIN schematic attempt for “The Pioneer’s Violin” can be seen below.



### 3.1.2. Plus Electrification[2] (1972)

1. Background

Awarded Soviet animator Ivan Aksenchuk was a filmmaker of fairy tales, inspired by many myths and tales across the world. Moreover, he used classical music as a background element with Disney style in all of his animations, such as “Nut Walnut” (1955), the Uzbek “The Stork” (1956), and the Italian “Boy of Naples” (1958). His Soviet propaganda animation “Plus Electrification” (Fig. 2) with Yuri Saulsky’s (1928) soundtrack can be seen as the most mature and experimental work in the director’s oeuvre regarding music visualization based on Communist propaganda as it was shot in 1972.

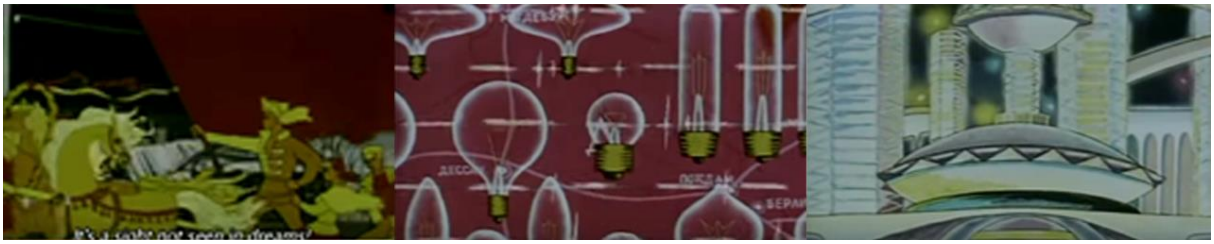


*Figure 2: Scenes from "Plus Electrification" (1972)*

2. The Plot - Story

“Plus Electrification” is a similar work to Kotyonochkin's "Prophets and Lessons” (1967), both in terms of montage and music use. But unlike Kotyonochkin's complex and general content, this bricolage work focuses only on the USSR’s achievements on electrification.

The movie starts with the opening credits. The camera moves from left to right while showing an animated town in the dark. The camera keeps its movement; this time, we see the town and empty fields up-close. In the next scene, the electrification plan map is shown. White halos appear on the map as they represent electricity. The first letters of “State Commission for the Electrification of Russia” (S.C.E.R) fill the screen. A bulb emits light, and it locates itself between an old Russian villager man and woman in the end.

Giant walking utility poles enter the dark town; they erect and connect themselves to each other with the wires. An animated horse-drawn carriage enters the town. As the carriage moves from right to left through the town, the dark buildings and roads light up. In the next scene, the real footage of textile and agriculture workers is shown very shortly. Animated flying fabrics with fancy patterns surround the dancing female villagers. As they dance in a circular

movement accordion, tractors' circular movement on the field takes over their dance. Tractors line up horizontally, the camera tilts up, and shows a giant industrial town. Here, giant utility poles that are wired to each other march forward. They reach the peak of the mountains. The real footage of electricians and dams are overlapped with the animated roads with utility poles and flowers. The sea is shown as the music calms down. A mix of real and animated hydroelectric facilities and related pieces of machinery are shown. Utility poles march on the field. These utility poles have the flags of Soviet satellite countries such as Poland or Czechoslovakia, and they connect each other with the wires. Electronic communication is represented by fast-moving lines between the utility poles. The lines turn into the galloping herd of horses. The satellite countries' achievements are represented with collage-style visualization; countries' names, maps, real or animated footage are overlapped with each other.

In the final section, a man with a scientific suit pushes the buttons in a kind of power plant. A traditional industrial town is surrounded by giant futuristic buildings is shown. Futuristic combine harvesters reap the field in perspective. Mountains are destroyed, bridges are built. The man keeps pushing the buttons. An island with giant trees is created by a giant circular machine, and giant satellites control the weather. The futuristic city grows larger; high-speed trains with giant red flags on them pass through the city. With this view sets in the background, Lenin's quote appears with large letters: *"Communism = Soviet power + electrification of the whole country."* A high-speed train moves on the futuristic railroads, then we move through this railroad in a first-person view. An animated waving red flag is shown for a short time, and again the railroad with the first-person view, the film ends.

## 3. Locating Dominant Tendencies

Instrumental orchestral music, based on mostly march, dominates the visuals with the accompaniment of choir in Russian folk song *"Along with the Village,"* horse galloping, rattling, tractor sound. The human voice is saved for the last scene to strengthen the message of the film, in a similar way to Kotyonochkin's "Prophets and Lessons."

The folkloric melody blends with the orchestra as well as the rattling sound accompanies the scene coming from the sleigh bells hung on horses' necks. Similar to "Prophets and Lessons," accordion sound has its special place. Accordion solo takes over the orchestral music when the real footage of textile and agriculture workers is shown very shortly. Animated flying fabrics with fancy

patterns surround the dancing female villagers. As they dance in a circular movement with the soft melody of accordion, tractors' circular movement on the field take over their dance. After their movement, the music stops, and only tractor sound is heard for a short time to underline the importance of workers but especially the farmers.

Finally, in the film, the horse galloping sound is deliberately assimilated to voltage sound. Thus, the audience can follow the development of electrification technology and connect them to each other, thanks to the contrapuntal use of sound along with the visuals (horse and electricity).

## 4. Spotting Important Points of Synchronization

The most dominant synchronization is the giant marching utility towers that are mirrored in orchestral music with marching tone, a reminder of Richard Wagner's Valkyrie from his opera Die Walküre (1856). As a result, the marching tune seems almost a leitmotif for the utility towers. As they reach the peak of the mountains, the march turns into a more romantic melody.

The music calms down with the real footage of a sea. Calm music turns into a passionate romantic melody played by the orchestra. Later on, a mix of real and animated hydroelectric facilities and related pieces of machinery are shown. Romantic orchestral melody blends with a march, animated lined-up utility poles march on the field. These utility poles have the flags of Soviet satellite countries such as Poland or Czechoslovakia, and they connect each other with the wires. The wire connection sound is represented by cymbal hits.

The mood of music suddenly changes. Rhythm gets faster as the vibraphone and organ resemble an electronic machine with the accompaniment of galloping horse sound. These instrumental sound effects are sometimes achieved by using punctuating notes for solo wind instruments doubled with xylophone and also by vibraphone, piano, and timpani pulses in a nocturnal scene, rapid monotone pulses, and rotating ostinato (Rogers, 2015, p. 112). On the other hand, music, sound, or noise depicting a hostile (indifferent) world and provoking a sort of psychotic regression often sounds mechanical, automatic, as if it unveiled the robotic face of the human unconscious (Richardson and Hawkins, 2007, p. 189).

Electronic communication is represented by fast-moving lines between the utility poles. The lines turn into the galloping herd of horses, referring to the ones in the beginning since they represent electricity. The satellite countries'

achievements are represented with collage-style; countries' names, maps, real or animated footage are all mixed up with the fast rhythm of the music. In the upcoming variety of footage, rhythm music takes a different form but a little bit slower. This time we see more real footage that contains space technology, such as satellites with the red and yellow map in the background, where the communication lines are flowing fast on it to match the music's rhythm. This part of the film is more dreamy comparing to other parts, and the main reason is that the use of vibraphone and other metallic sounds. A similar use of vibraphone can be observed in Mike Nicholls' character "Harper" from his drama miniseries "Angels in America" (2003) as Richardson and Hawkins note when a scene is without music but suddenly moves to some character's inner world, the sign of this transition in the point of the audition is often a chaotic hum or metallic noise that is echoed; after this device, other music may follow, such as the "alienating" vibraphone in Harper's hallucinations [11, p. 190].

As the music turns into its main theme to signal that the end of the film is coming, we only see the animated footage to create the symmetry of the film. A man with a scientific suit pushes the buttons synchronized with an organ sound in a kind of power plant. A traditional industrial town is surrounded by giant futuristic buildings. Futuristic combine harvesters reap the field in perspective. Mountains are destroyed, bridges are built. The man keeps pushing the buttons. An island with giant trees is created by a giant circular machine; giant satellites control the weather. The futuristic city grows larger; high-speed trains with giant red flags on them pass through the city. With this view sets in the background, Lenin's quote appears with large letters: "Communism = Soviet power + electrification of the whole country." A high-speed train moves on the futuristic railroads, then we move through this railroad in a first-person view. An animated waving red flag is shown for a short time and again the railroad with the first person view. Orchestral music finalizes itself vehemently, accompanied by sharp horns and timpani before the film ends.

## 5. Narrative Analysis

The animated film that does have a modular structure in the sense of bricolage with real and animated footage seems to also have a chronological order as we see the towns first and a futuristic Soviet city in the end. The music follows this order, we hear folk songs at first, and toward to end, more rhythmic orchestral music takes over these songs. Despite this flow, the chronological order is not so apparent in order to give a sense of timelessness at the same time. The film does

have a symmetrical structure as it starts with the Russian folk song *"Along with the Village"* and ends with its orchestral variation.

## 6. Comparison

Comparing to Aksenchuk's previous Disney-style works, traditionally animated scenes in "Plus Electrification" are rough, figurative, and sometimes abstract, dominated mostly by yellow, red, and black colours while the real footage is filtered with yellow colour. Many scenes, such as overlapping images, recalls the collage posters that support the bricolage visualization of the film.

## 7. Audiovisual Canvas

In general, the 'score' consists exclusively of popular songs, but the songs take on the functions in terms of montage and narration. Here the primitive horse-drawn carriage creates a contrast to high-tech electronics to increase the contrapuntal effect. The 'Confitatis' excerpt in Milos Forman's Amadeus (1984) presents a similar type of choreography: the image of a galloping horse carriage functions as a visual signifier of the agitated musical gesture at the beginning of the excerpt. In other words, music prescribes the visual materials, not the other way around (Stilwell and Powrie, 2006, p. 61), as we hear the Russian folk song *"Along with the Village"* in Aksenchuk's work.

The general structure of the movie is similar to science fiction films, as it is based on technology (electricity) along with some futuristic elements in the final section. Philip Hayward identifies the proliferation of experimental scoring in science fiction films as arising following the Second World War. Exemplified in films such as *The Forbidden Planet* (1956) and *The Day the Earth Stood Still* (1951), these scores employed unusual orchestration and electronic instruments and often rejected tonal harmony in order to produce scores that were quite distinctly "out of this world" (Hurst, 2015, p. 21) in the way of amalgamation of sounds and music in Plus Electrification.

Last but not least, Plus Electrification's real inspiration comes from its "City Symphony" movie form similar to *Berlin: Die Sinfonie der Grosstadt* (Berlin: Symphony of a Great City, Walter Ruttmann, 1927), *Manhattan* (Paul Strand and Charles Sheeler, 1921), Chelovek's *Kinoapparatom* (Man with a Movie Camera, Dziga Vertov, 1929). These films helped to invent the avant-garde nonfiction film by handling documentary footage of the modern city in ways that could be

abstract, poetic, metaphorical, and rhythmic (Jacobs, Kinik, and Hielscher, 2019, p. 22). Given this perspective, *Plus Electrification* does not only deal with the industrialization of Soviet cities but also, in a highly self-reflexive way, with their cinematic representation.

8. Leitmotif

Unlike themes in the classic film score, traits of Plus Electrification's visuals are not represented by singular leitmotifs. Instead, it is the style of the popular Russian songs that signify as leitmotifs in the film.

## 3.2 Indie Animations

Independent animation comprises animated short cartoons as well as feature films produced outside the Hollywood industry. The history of indie animation is as old as the film and animation industry itself, and it goes back to the early 1920s. Independent animators usually produce more innovative, sometimes experimental works comparing to the industry's mainstream products. Most important indie animators are also the visualizer of classical music, such as Mary Ellen Bute, John Whitney, and Oskar Fischinger. Popular indie animators such as Don Hertzfeldt, specifically in his The Meaning of Life (2013) and Rejected (2001) or Mark Robbins' Line Rider series, visualize classical music and become highly popular on social media platforms. On the other hand, the term "independent" brings its own complications as well. According to McGill, American independent cinema has become an increasingly knotty subject. "Independence" is a term that can be used variously to describe a cinema whose industrial practices take place entirely away from the Hollywood studios in terms of production, distribution, and finance; but it can also mean an industrial sector that is no longer separable from Hollywood (Mcgill, 2008, p. 47).

Aside from that, the experimentality on classical music visualization mostly came from independent short animated films. Tobias Frühmorgen's 3:59 Freude (2008), a depressive heterosexual computer dreaming about Friedrich Schiller's Ode to Joy poem, visualizes Beethoven's Ode to Joy melody from his 9th symphony, with signs and video gaming effects. In Dies Irae (2012), Joanna Jasinska visualizes Mozart's Dies Irae from Requiem, with a galloping horse interacting with fire and water. Another example would be *Wedding Day* (2017) that is Zuzana Cupova's short animated film made with vigorous music from

Antonín Dvořák's Slavonic Dances with a story about Czech folk wedding and folk embroidery.

As for the short film, London-based director Marie Schuller's work *Florin's Act of Bravery* (2016) tells the story of a local teen who feels disconnected from his surroundings, his family, and his culture. An introverted and quiet character, Florin (Benjamin Milan), escapes this alienation and boredom into an increasingly poetic life of inner thoughts and wonder." (Schuller, 2020). Schuller uses the main theme of Dvorak's *Slavonic Dance*'s second piece's intro as a leitmotif of this deep, feminine and complicated character and creates a contrast with Romanian folkloric songs that are played in the movie.

In this section, the author will analyze the selected indie animation works based on classical music visualization.

### 3.2.1 Pictures at an Exhibition[2]

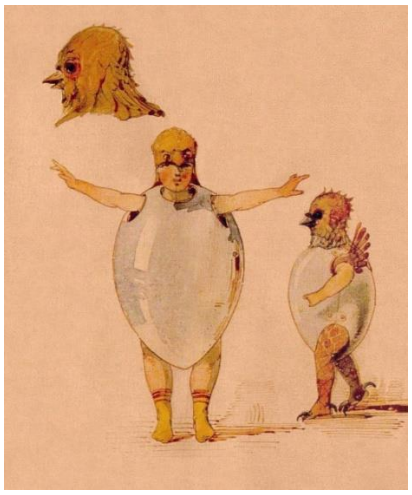
Apart from Fantasia's (1941) animation on 'Night On Bald Mountain,' various artists and directors around the world have attempted to visualize Russian composer Modest Petrovich Mussorgsky's (1839) masterpiece piano suite 'Pictures at an Exhibition' (1874). However, French composer Maurice Ravel's 1922 version for full symphony orchestra overshadowed the piano suite, and as a result, Ravel's version has been preferred for visualizations. This version has also remained the most recorded and performed one. The importance of 'Pictures at an Exhibition' for visual arts has many reasons. First of all, it is based on Russian architect and painter Viktor Hartmann's (1834) paintings and drawings. Unfortunately, however, many of these drawings are long lost, and those that were recovered in the early 20th century were often received with disappointment (Laing, 2007, p. 2), and Hartmann unexpectedly died of a heart attack at the age of 39 (Nagachevskaya, Svetlana, 2009, p. 37). Secondarily, it is an example of program music, similar to a programmatic symphony such as Berlioz's Symphonie Fantastique, as Tsougras and Stefanou note, it refers to a series of paintings and the imaginary effective exploration of their features. This program, in keeping with 19th-century formalist distinctions between intrinsically musical features and extra-musical interpretations attached to them, is seen as somehow secondary and 'parallel' to the music (Tsougras and Stefanou, 2015, p. 1). On the other hand, for Wassily Kandinsky, the music was not slavishly programmatic.

[2] https://vimeo.com/59929930 [Accessed 17 September, 2021],
https://www.youtube.com/watch?v=rnXAih9kB0M [Accessed 17 September, 2021].

Whilst acknowledging that the paintings which originally inspired Mussorgsky were naturalistic and anecdotal, Kandinsky felt free to use largely non-objective shapes 'that came to mind while listening to the music (Kershaw, 1982, p. 113-114) as he was staging Mussorgsky's composition, *Pictures at an Exhibition* which Kandinsky produced in Dessau in 1928. Nelson (2015) notes that German art critic Will Grohmann (1887) considered that "chromatic material becomes decisive as in music and in this respect, Kandinsky stands between Mussorgsky and Scriabin." But for him, this Chronologically makes sense, yet theoretically, Kandinsky sought more for a resonance than their dissonance: for forms and colours should penetrate the beholder, directly impact the soul, reverberate in him, and move him in his depths (Nelson, 2015, p. 36).

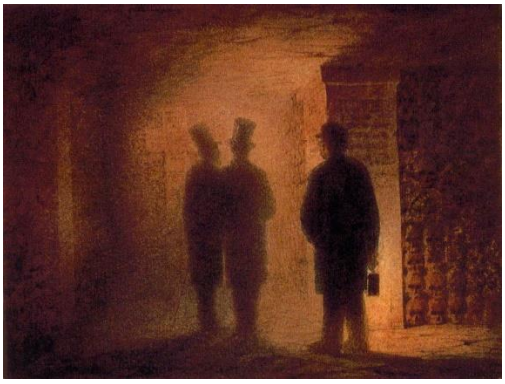
The musical piece of Mussorgsky consists of Hartmann's sixteen images, which reflected Mussorgsky's impressions of an exhibit of pictures. Each movement of the cycle embodies very distinct qualities of emotion, ultimately expressing a broad yet penetrating amalgamation of life experience. (Quick, 2014, p. 4) Pictures at an Exhibition's movements and their corresponding themes can be seen below:

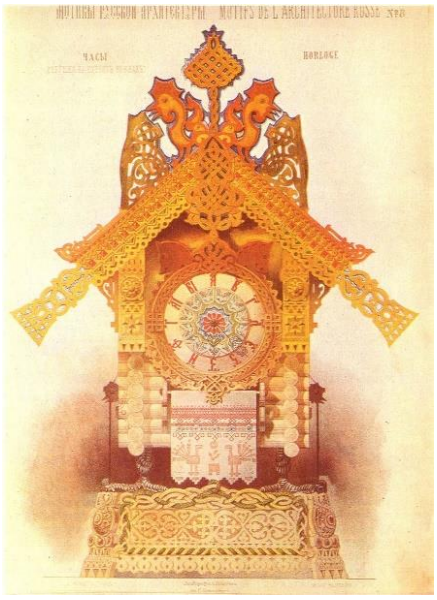
*Promenade* (I) Russian piece
*1. The Gnome:* Fantastic character
*2. The Old Castle:* Mystical piece
*3. The Tuileries:* French everyday life
*4. Bydlo:* Tragedy of the poor
*5. Ballet of the Chicks in Their Shells:* Joke
*6. Samuel Goldenberg and Schmuyle:* Tragedy of the poor
*7. The Market Place in Limoges:* French everyday life
*8. The Catacombs:* Mystical piece
*9. Baba Yaga:* Fantastic character
*10. The Great Gate of Kiev:* Russian piece
[18: p. 47].

A. 

B. 

C. 

D. 

E. 

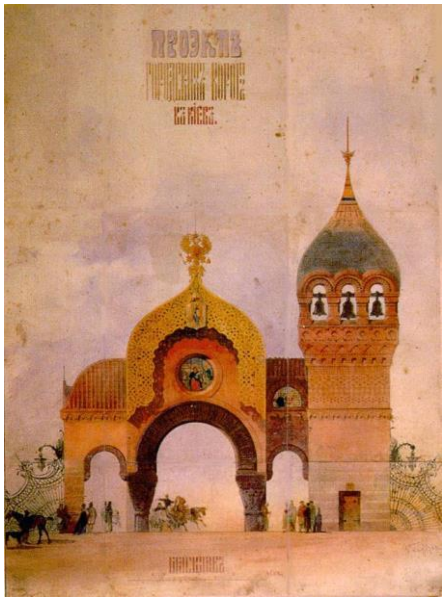
F. 

*Figure 3: The surviving works of Viktor Hartmann used by Mussorgsky's suite:*

*A. Sketches of theatre costumes for the ballet Trilby.*
*B. Jew in a fur cap. Sandomierz.*
*C. Sandomierz [Jew].*
*D. Paris Catacombs (with the figures of V. A. Hartmann, V. A. Kenel, and a guide holding a lantern).*
*E. The hut of Baba-Yaga on hen's legs. Clock in the Russian style.*
*F. Project for city gates in Kiev. Main façade.*

Mussorgsky connects the suite's movements with the viewer's progress through the exhibition in a gallery. Promenade leitmotif between the movements holds and welds the suit together and represents the act of walking. The following movements reflect a variety of moods and characters. Today, it is possible to find many contemporary interpretations of Mussorgsky's masterpiece.

The Cal Poly Symphony from California interpreted "Pictures at an Exhibition" with the collaboration of an internationally exhibited and published photographer Sky Bergman's shots in its 2012-13 season. Bergman's work is based on the sequences of photographs with the support of footage. These images and footage show many architectural masterpieces, lifestyles, and natural wonders around the world. The images and the theme of movements are not strongly connected, and seemingly the footage is randomly selected. For instance, in the "*Ballet of the Chicks in Their Shells"* movement, we see some pupils walking on some old wooden boats and cleaning the floors through the monuments and temples in Burma, Myanmar, and we may see some synchronization in their steps. In "*The Market Place in Limoges,"* we see a street of the city in time-lapse; as the movement ends, the time-lapse goes backward. While in Promenade sections, Bergman prefers to show mostly still and calm images such as water and landscape, the concert ends by showing a variety of architectural wonders around the world such as Pyramids and Machu Picchu. The visualization here seems like a background element more than an artwork. Surely selected images are not connected with the subjects in the movements, and this creates a contrapuntal effect, and Bergman tries to connect the audience with music by evoking collective or cultural subconscious and heritage.

Very interesting and minimalist work can be observed in Andrew Quinn's TouchDesigner software-based visuals with the collaboration of Orchestra Sinfonica Tito Schipa in Teatro Politeama Greco Lecce, Italy, 2014. The visuals are totally based on computer-generated abstracts and mostly absurd 3D animations. The sharpest element here is the stable white vertical rectangular frame in the middle of the screen. Seemingly it tries to help the audience's focus.

This frame also distorts the images as they are seen under the water, so it acts as a lens. Towards the end of this concert, the frame enlarges and disappears. As it happens, a giant cage opens its doors, abstract images similar to sun and sunrise appear, the show ends. However, as the animations are already easy to follow, and nothing is complicated, this frame seems unnecessary. As a result, rather than artistry, this work seems technology-based due to the use of the software TouchDesigner, a node-based visual programming language for real-time interactive multimedia content used by artists and programmers.

As for the analysis, the two featured works offer more artistic solutions. Instead of using Chion's Audio-visual analysing method, the author will analyze these works by comparing them to each other because they have consistent similarities and differences based on the same musical idea. The first one is an accredited Japanese cartoonist and animator, the creator of many famous mangas such as Astro boy and cartoon series ,Don Dracula, Japanese "Walt Disney" Osamu Tezuka's interpretation (Fig. 4) created in 1966. The second one is a performance (Fig. 5) by New World Symphony Orchestra and animated by faculty, students, and graduates of the USC School of Cinematic Arts, directed by Michael Patterson and Candace Reckinger in Los Angeles, 2011. Here, the animated film is projected onto five wall surfaces around the symphony orchestra.

*Figure 4: Scenes from Osamu Tezuka's "Pictures at an Exhibition" (1966)*

*Figure 5: Scenes from USC's "Pictures at an Exhibition" (2011)*

In Osamu Tezuka's *Pictures at an Exhibition*, a new version of the music is created by Isao Tomita. As the Promenade is enriched by harpsichord, we see real footage of a museum with intro credits. In the next scene, we enter the museum, and the camera shows us some paintings on the wall. The camera zooms in one of those pictures, the journalist. *The Gnome* movement begins; we see the fantastic character, the journalist, who is a dwarf with blue skin, long arms, and short legs, white hair. He walks like a spider and behaves like a corrupted authoritarian politician more than a journalist. He criticizes people around him, dislikes pictures, texts, and almost everything except for beautiful sexy women. Music is mostly mirrored in his movements, similar to mickey-mousing. As *The Gnome* ends, one of the journalist workers wants him to dig the ground with a shovel. The journalist rejects it and moves away from the camera. On the other hand, Patterson and Reckinger's work shows us stylized images of the interior of a museum. Colourless people walk through the uniformed coloured rectangles; the camera sometimes zooms in one of them. Some people are formed of uniform colour. Finally, a painting appears on the wall, and the camera zooms in it. This painting shows a blue environment where the upcoming animation takes place. As *The Gnome* movement begins, a corrupted character tries to do some acrobatic stuff just as walking on the rope. Each time he attempts to do something, a giant real human hand interrupts him. The character looks into his giant figure, and it is crushed by the hand. He is torn to pieces as lines. He puts himself together; this time, he seems wounded and fills the screen. He tries to scare the audience, but

suddenly, as *The Gnome* ends, he moves away from the camera and enters a rectangular pit by running. Here the important elements are that Gnome is being watched all the time in a similar way to Hitchcock's *Vertigo* to recalibrate Lacan's theory of the gaze as it figures in film theory and the acoustic realm while suggesting ways in which this new formulation of the gaze forms a homology between music and the visual aspects of the film. Here, the movies song's gaze is also uncanny in all four properties: it is animated, moving from the diegetic as we see it produced to non-diegetic; it repeats itself through the years; it is repressed as the characters ignore the impact of the song until it fulfills its own dark prophesy ('endless night') and it is aligned with a kind of vision with the giant eye that fills the screen. (Smith, 2008, p. 72).

Here, as we can see, *The Gnome* depicts thinking highly of oneself. Surely, that is maybe the main idea of the whole suite, but we see the use of *The Gnome* in the Coen Brothers' cult movie "*The Big Lebowski*" (1998). This movie is about a slacker, "*The Dude,*" who lives in Los Angeles, and the absurd events revolve around him. Overall, the extensive integration of music and stylized dialogue grants The Big Lebowski greater associative and representational properties (Barness, 2005, p. 240). In the movie, The Dude's landlord invites him and his friends, Walter and Theodore, to his dance recital. At the theatre, while the landlord performs his dance with *The Gnome,* Walter tells his revenge plan to Lebowski that will absurdly turn against them. Furthermore, Dude and his friends do not even watch the recital but talk about their plan. Here absurdly dressed Landlord (similar to Roman senators) is trying to reach somewhere or something in his absurd dress. First, we see him behind a projector platform as a shadow. As he reveals himself, we notice he is much smaller than his shadow. This can be seen as a metaphor for Walter's assertive but failed plan that is all mirrored in Mussorgsky's music. In the original theme of *The Gnome,* as Pesante Dwarfs said to live underground and guard treasures, the melody is dark, and the rhythms jump out at you (Valente, 2017, p. 231), and this explains the dwarf's sudden movements synchronizing with the music. Both Tezuka and Patterson and Reckinger's versions use the combination of faded purple and blue tones for the environment and characters as blue also supports grey, which has a tendency to move away from humanity (Kandinsky, 1946, p. 71) because dwarfs are already corrupted. While the music in Tezuka's version is cartoonish due to the arrangements, the latter uses the original music. As a result, Patterson and Reckinger's version uses 3D elements projected onto walls around the orchestra, and the original score's more polyphonic structure overlaps with the visuals while Tezuka's Disney-style cartoon matches up with the mickey-mousing version of *The Gnome.*

The next movement, *The Old Castle*, since it is written in *andante molto* pace, this piece serves as a background element in both versions. While Tezuka prefers to tell a story of 'Gardener of the artificial landscape,' Patterson and Reckinger just make us walk through a haunted 3D castle. In the first one, an organic but weary bee tries to collect pollens through the artificial flowers in a garden surrounded by some high-tech skyscrapers. As the bee finally passes out due to this hard collecting process, the gardener shows up and disposes of him. In the latter version, a dancing ghost-looking couple in the castle dominates the scene, and it has similar ideas to Kandinsky's version. As Kandinsky notes, The stage is bare but in total darkness... The central figure appears from the darkness. It is illuminated with intense colour (Kershaw, 1982, p. 114). Both versions prefer blue and gray colour, similar to the previous movement. While sustained bass note gives medieval flavor, in Tezuka's version, whistles and male chorus play the main melody, it creates a contrapuntal effect with the high-tech buildings and artificial surroundings with an interesting story, Patterson and Reckinger's version seems a very mainstream visualization.

The next movement, *The Tuileries,* depicts a famous garden in Paris where children play with nurses. Here melody is gay, childish, and light, and the movement lasts short. Tezuka prefers to tell a story between a cosmetic surgeon and his female patient. The style is minimalist; we just see the childish basic animated drawings with charcoal pencil on white paper. The surgeon tries to make her more beautiful in an absurd way; however, in the end, he sneezes, and this action deforms his face. Patterson and Reckinger's approach is more straightforward as we see playing children in a green park as colourful childish drawings from the top view. Some parts of the scene are greyed out to create an interesting focus, but they are colourized later. Playing children in zoetrope view are overlapped with the park view as the movement finalizes itself.

Following the movement, *Bydlo* is about a tragedy of the poor laborers, and in the original picture, a large oxcart is stuck in the muddy field, which takes place in Poland. The theme is brutal and heavy with abrupt rhythms. Tezuka titles his work as 'Big Factory Proprietor.' Here we see a brutal and capitalist factory owner puts his workers work. The movement of pieces of machinery in the factory is mostly synchronized with the music's rhythm. In the end, the proprietor gets caught by a large rotating cogwheel on the conveyor belt. He becomes a part of the machinery as an adhesive by the machines that force him to use his tongue for packing the boxes. The typical grey colour is used for the factory with the combination of a worker's blue uniform. Patterson and Reckinger prefer to show working Eastern European farmers in the field with totally greyed-out colours that are connected with the original subject. As the movement reaches its peak,

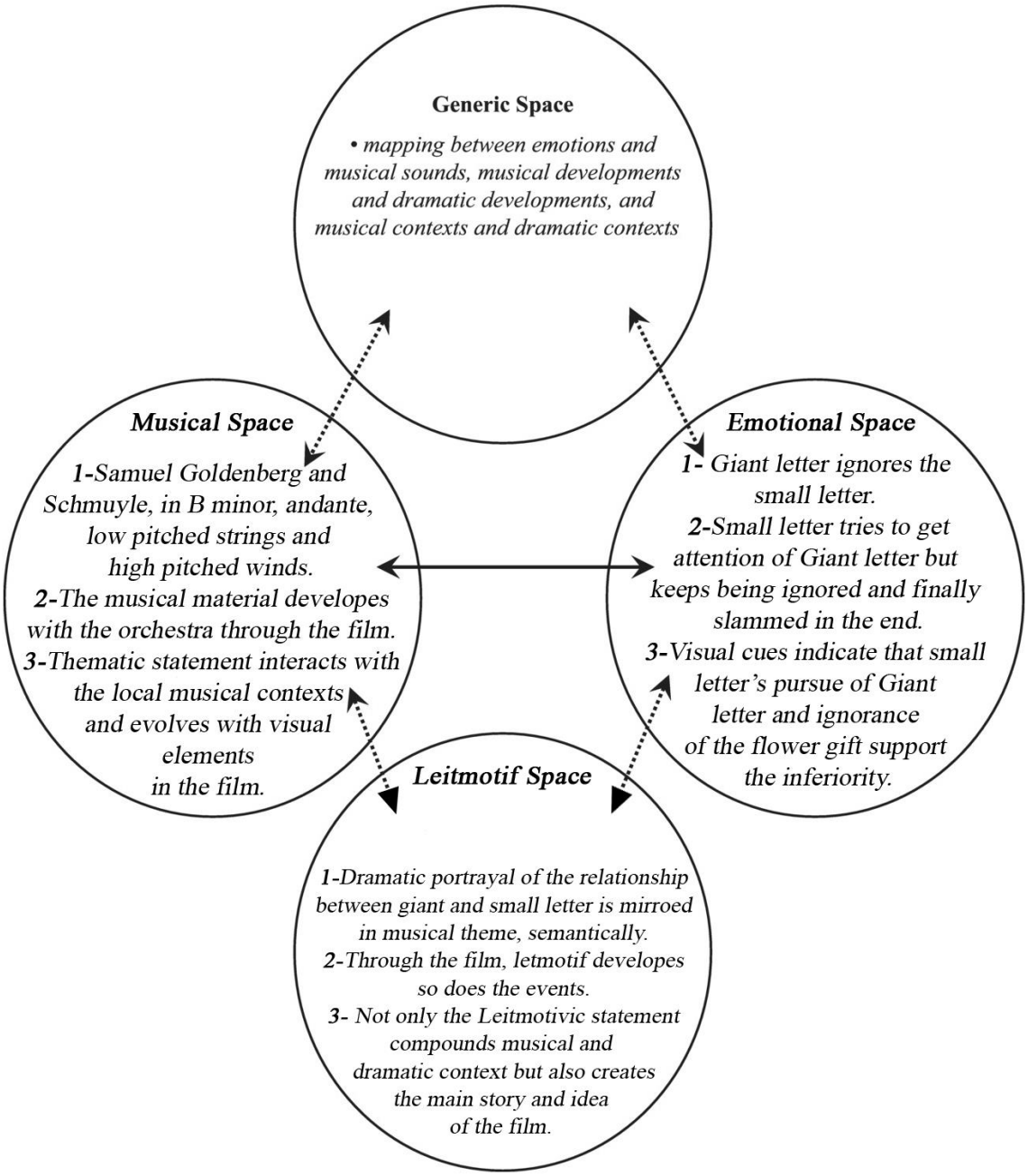
farmers push harder a large oxcart carrying a giant tuba. Here tuba surely refers to music and creates an allegory. The animation ends by showing the general view of the scene: farmers keep pushing the oxcart with tuba, and working farmers harvest the wheat as the music fades out.

Suite's famous scherzo *'Ballet of the Chicks in Their Shells'* does have a humoristic melody with double tones. Here, Tezuka names his painting as `Beatnik,` which defines a youngster that is associated with the beat generation between the 1950s and 1960s, and we exactly see the cartoonish young people are dancing with 1960s dressings in the red background. However, the upcoming animation is not about the young people but dancing chicks with their half-shells at the bottom in the red background. These chicks are not innocent creatures but corrupted ones. They smoke, fight, or kill each other. They dance like ballerinas, and their steps and movements are synchronized with the scherzo. In the end, the remaining chicks go back to their half shells and get encapsulated by the eggs. Here the red background deliberately disturbs the audience, intensifies the violence, and contradicts with the innocent but humoristic melody. The modified scherzo is enriched by finger snap sounds and percussions. On the other hand, Patterson and Reckinger prefer the same theme in 3D animation. Here we see the dancing chicks again. A newborn and different-looking chick tries to adapt itself to its friends as they have an angry and weird looking. They also do the ballerina movements, and these figures are synchronized with the music as expected. In both scherzos, we see the typical scherzo use in film: The action sequences in which scherzo often appear are predicated on overload of both a sensorial level (through visual spectacle, fast cutting, and loud sound design) and a narrative one (through rapid changes matters like location, character advantage, and overall tension) (Lehman, 2018, p. 20).

Sixth movement *Samuel Goldenberg and Schmuyle* portrays two Jews. Here the theme is a mixture of weak and proud melodies. In Tezuka's version, some of the string passages are replaced with low-pitched horn and tuba sounds. This suits the story as we see an elephant as the main character and seemingly low-pitched horn sounds similar to elephant sound coming from their tusk. In the story, a Jew-looking and rich ant hires a baby elephant for boxing tournaments. As the elephant grows up, the ant's wife is attracted to him. Jew-looking ant becomes jealous, but the elephant hurts him. Elephants try to go back to rings. However, his tusk falls down every time he tries to fight, and in the end, he shrinks in size after losing his tusk. Patterson and Reckinger tell a similar story, but this time the relationship between two calligraphic letters from a Jewish scroll. A giant letter tries to dominate a small letter as a small letter cleans the ink stains on the scroll. As the small letter wants to have a good relationship with the giant one, he creates a flower shape from inks, but the giant letter refuses this gift. As the small letter

drops an ink, the ink automatically turns into a small flower, but this even makes the giant letter angrier. Giant ink crashes everything, and the animation ends. Both works can be read as bureaucratic relations in the Jew community, and despite the wealth, hierarchy brings chaos and unhappiness, and Mussorgsky's depressive music serves as a background element.

Table 12: CIN leitmotif attempt for the Sixth movement Samuel Goldenberg and Schmuyle.



The seventh movement is another lively scherzo *Market Place at Limoges*, which depicts some gossiping housewives at the market. Tezuka prefers to tell his story named ‘athlete‘s foot dryette. Here, many men wait for a lady to arrive at the studio to shoot a commercial. In the end, the commercial only uses her foot as a visual. The animation style is similar to his *The Tuileries* interpretation as the figures are formed of a few pencil lines, and the movement is mostly played by piano and percussion. On the other hand, Patterson and Reckinger show us real marketplace footage in timelapse, similar to Godfrey Reggio’s Qatsi trilogy (1982-2002), where he used the same timelapse technic for Phillip Glass’ minimal music. Using the advantage of having three-five screens, sometimes each screen shows different events in the market. People’s walking, butcher’s chopping, and similar movements are synchronized with the energetic rhythm of this scherzo. The movement’s last passage is mirrored in light trace effects created at the market.

Suite’s eighth movement, largo *Catacombs*, is depicted by a funereal melody with heavy chords. Tezuka names his picture as ‚Zen Priest‘. We see a zen priest in the middle of the screen in a meditation position. The priest’s face looks surly and scary. As he meditates, the weather and environment around him change dramatically. We see rain, thunder, falling stones, earthquake. Towards the end, the priest stretches his body and scream, but screaming is not heard. Rather than having complete synchronization, here, Tezuka tries to create a visual sense for the mood in this largo. Despite the funereal melody in the music, zen’s dynamic thoughts are about creation. Thus, it can be said that artistic contrapuntal has been created. Contrarily, Patterson and Reckinger define the music as it is. Here people are walking around a graveyard-looking place named ‘Tombe Issoire‘ in Paris. The scenes are black-white, and in the end, some people enter a cave where a man paints a picture on the canvas. The painting depicts the people who enter the cave. As the cave represents the subconscious, the only thing to see here is themselves. As a result, here, people are stuck in the cycle of life, death, and nothing more.

Ninth chordal movement, allegro con brio *The Hut of Fowl’s Legs* does have heavy basses, and it depicts an absurd oriental hut-shaped clock standing on giant chicken feet. Tezuka shows us some chaotic war scenes with figures, abstract shapes, abstractions, and here animation is a rough sketch style. This technique is mirrored in the brutal tone of the music. After the chaotic intro, we see the story of two soldiers trying to help a sick woman by giving her some water in the wooden hut during wartime. However, these soldiers are also enemies to each other; as a result, they kill each other, and a sick woman dies in an explosion. The animation ends with some Norman Mclaren-like abstract shapes synchronized with the music. Here two soldiers may represent the chicken feet of a sick woman’s hut as an allegory and declaring war on each other, nothing but behaving

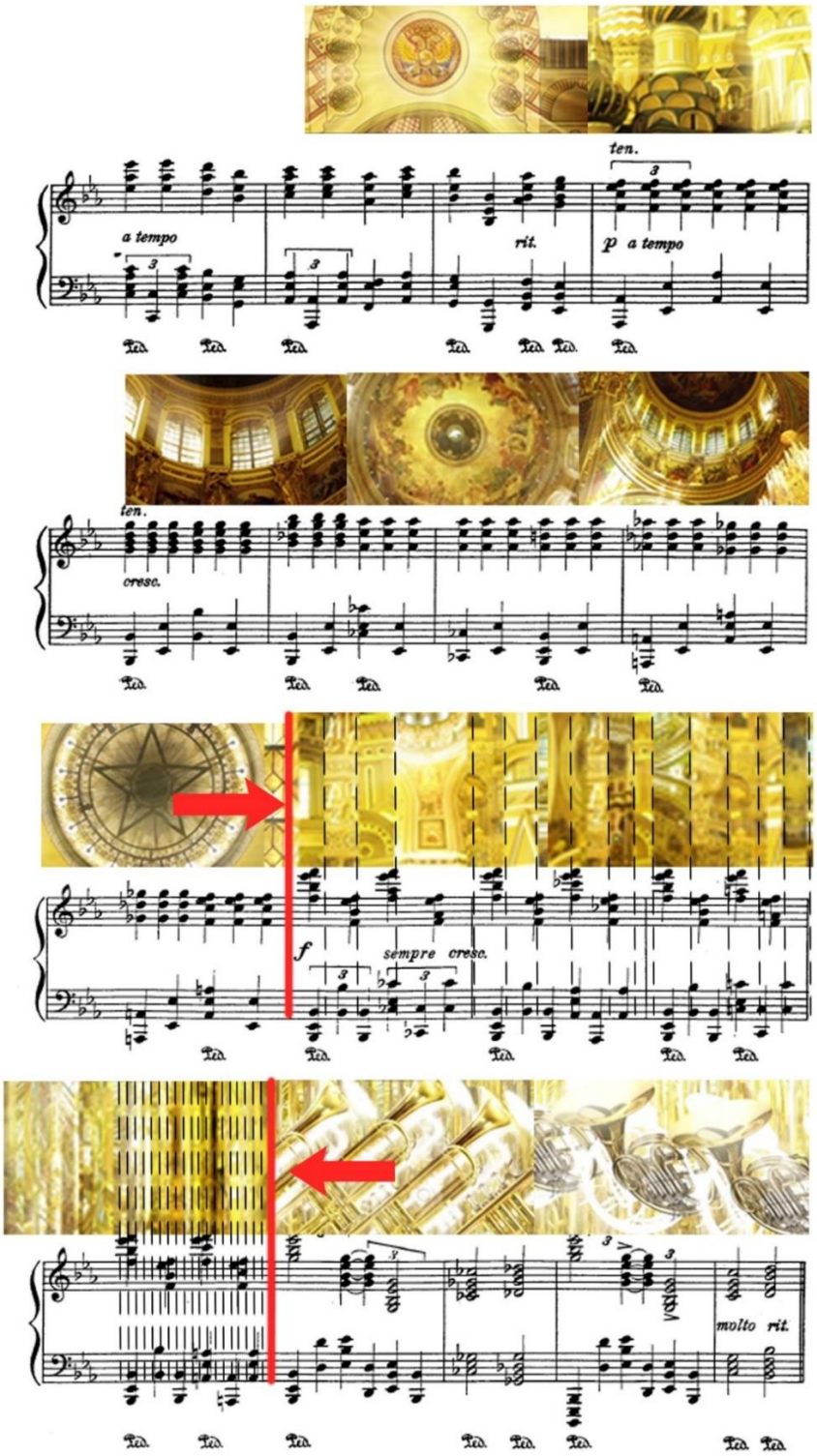
like an animal. Patterson and Reckinger depict the music in a similar way to how the audience imagined on their minds. A hut with giant chicken legs walks in the middle of a forest, synchronized with the energetic intro of this movement. As we start to hear calm passages, we enter the hut. Inside, we see many objects that are calling mysticism, such as skulls, candles, elixir bottles, and eyeballs. A gypsy-looking and one-eyed old female fortune taller invites us to another room. As she tries to read some horoscope-related cards on a table, she pulls the death card, and the energetic part of the music begins again with timpani beats. The hut starts walking, the fortune teller levitates, and in the end, it seems she turns into a giant. Here Patterson and Reckinger prefer using violet as a dominant colour with a black background. As Kandinsky notes, violet, a cooled-red both in the physical and spiritual sense, possesses an element of frailty, expiring sadness (Kandinsky, 1946, p. 71). As a result, this colour seems feminine, and it is associated with mysticism because it is considered proper for dresses of older women, as the Chinese actually use it as the colour of mourning. It is similar to the sound of an English horn, the shepherd's flute, or the deep, low tone of wood instruments (for example, a bassoon) [24, p. 71] as we heard in the movement.

*Graphical analysis:*

Final majestic and sonorous movement *The Great Gate of Kiev* sounds like an overture, bonds all the previous movements together. Tezuka names his last animation as ‚Allegorical Conclusion‘ and gathers all of his characters from previous movements under a triumphal arch similar to one in Paris. Here the music is enhanced by a chorus as we see an army of figures and characters. At the same time, we see the glorification of the arch with Roman statues and sculpts around it; both the mood and the visualization change in an absurd way as we start hearing the last passage of the suite. An absurd orchestra in different locations plays the music in a unique way, such as instead of playing the violin, playing a huge injection, hitting the timpani sticks on heads, or a headless conductor. The humor here creates a huge contrapuntal effect with the majestic finale. On the other side, Patterson and Reckinger keep the finale as majestic as possible by showing the mixture of golden-colored abstract and real architectural elements, supported by glow, firework, and lighting effects. Surely, despite the advantage of having multiple screens, showing some duplicated horns to visualize ‘horn sound’ and finishing the fanfare with fireworks in front of some architectural elements may not be the most creative way but a very cliché one to finalize *Pictures at an Exhibition*. However, in the sempre crescendo of the final (Table. 12), we observe a divided screen version of vertical montage as each chord is corresponded with the sections of the church right after showing the interior of the church as a whole. The division gaps get tighter as the sempre crescendo comes to an end, but just before the second red bar, the exact matching goes away,

but the idea remains; the screen keeps dividing. The use of golden colours surely recalls the colour of winds; however, as I mentioned before, this creativity loses its abstraction, mystery, and form quickly when the real instruments are shown.

Table 13: Graphical Analysis of the last movement of *The Great Gate of Kiev*.



As a result, the general tone of Mussorgsky's masterpiece is about thinking overwhelmingly highly of oneself, which is connected to hierarchy, bureaucracy, and similar kafkaesque elements with dark humor. As expected, the melodies are usually dark, childish, but hopeful in the end. While Patterson and Reckinger have technological advantages over Tezuka, it does not make them more creative. Tezuka tries to tell absurd stories all the time with the mostly mickey-mousing version of the suite; Patterson and Reckinger mostly create atmospheres with 3D visuals that are mirrored in original music.

### 3.2.2 Baroque versus The Monk And The Fish[3]

1. Background

The first example of Baroque music use in animation would be Hungarian animated film director and graphic artist Reisenbüchler Sándor's works, especially "The Sun and the Moon is Stolen" (1968), which combines many classical music pieces from Vivaldi and many others with his characteristic visuals in the context of folkloric, fantastic and ecological themes. As Bellano notes, even George Antheil's score of Leger's Le Ballet Mécanique, there can be found some baroque or neo-baroque elements. (Bellano, 2010, p. 73) For Jackson, the multi-stranded interplay of melodic lines, which is the matter of the polyphonic music of the medieval, Renaissance, and Baroque periods, music whose trajectory is neither constrained nor informed by an overtly functional harmonic underlay, becomes the model to which contemporary music should return. Here, Antheil's time-space and time-form may, therefore, in part, be seen as instances of this ancient, but at the same time, urgently modernist preoccupation (Jackson, 1925, p. 4).

As Barham puts it, the Bach organ chorale "Ich ruf zu dir," BWV 639, from the Orgelbu¨chlein (the same piece played diegetically in the 1932 version of Dr. Jekyll and Mr. Hyde) frames the film and is used at two further crucial passages: one of nostalgic longing for the earth and the past, and one involving intense aesthetic contemplation of high art in the form of a Breughel painting, a scene which presents the core of Tarkovsky's cultural testament. According to the director's declared musical aesthetic of transfiguring recurring material, the music of this scene, and to a greater degree its final appearance, is elaborated upon electronically by Artemiev with vibraphone-like countermelody, and additional

[3] https://www.youtube.com/watch?v=ktGa0fSA6Gg [Accessed 17 September, 2021].

vocal, string, and bell-like textures, perhaps in an attempt to absorb Bach's "autonomous" instrumental work more organically into the film's sound fabric (see Ex. 7 for Artemiev's insertions into the Bach chorale-prelude). (Barham, 2009, p. 266). It is also worth mentioning Ingmar Bergman here, who musically differs from most of his contemporaries, including Antonioni, although he does seem to connect with Pier Paolo Pasolini and Andrey Tarkovsky, directors who, like Bergman, utilized Bach in several films, albeit after Bergman's first unequivocal use of Bach in Through a Glass Darkly (1961). Bergman's use of Bach constitutes one example of a life-long obsession, evident beginning with Prison (1947) and on through to his last film, Saraband (2003) (Wierzbicki, 2012, p. 15, 16).

Another artistic use can be observed in Jean-Luc Godard's "*Armide"* (1998) from Don Boyd's British anthology film "*Aria"* is based on the opera of that name by Baroque composer Jean-Baptiste Lully, and it is about the sexual seduction and distraction between man and woman. In the Aria anthology, there are many important works by a variety of directors, such as Robert Altman's *Abaris ou les Boreades* and many works use baroque or other types of arias as a background element. Here Godard's work is the most distinct one due to his modification of a baroque piece for the sake of visual narration that is mirrored in a sexual and sensitive subject. This important work is analysed with details by Cook in his book analysing musical multimedia already, and as he notes, Godard does not just select and recombine his music; he fragments it, fading it in and out or interpolating silences into it, and sometimes he even superimposes one number on another (Cook, 1998, p. 219) in a similar way to Dudok DeWit's La Folia modification which the author will mention in the following pages.

As for the independent animations, Johann Sebastian Bach's Prelude No. 2 in C minor (from The Well-Tempered Clavier, Book 1: BWV 847) is the leitmotif of the cyclist Champion in Sylvain Chomet's The Triplets of Belleville (2003). In the animated film, we first hear the piece on the TV, a man playing the prelude with the piano while the main characters are getting ready for dinner in the dining room. Here the man playing it is apparently a parody of Canadian Glenn Gould, a world-known interpreter pianist of Bach. Later on, as the Champion bikes in the Tour de France and goes up a steep hill, he hears prelude's orchestral version in his head as a meta-diegetic sound. The harmony of the prelude and its suspenseful rhythms make him aware of the dangers around him and keep biking at a fixed speed. Thus, unlike the other cyclist around him, he neither gets tired nor loses focus. But unfortunately, despite his young age, his innocence makes him a childish fool, and in the end, he is taken by the mafia so easily.

Russian animator Anatoly Reznikov's Scream (1989) depicts Baroque composer Antonio Vivaldi's Winter from his famous The Four Seasons Concerto

No.4 in F minor. In the animated film, we see the progress of humans, from an infant to an adult. The human figure keeps rolling down a steep hill as he evolves. The hill becomes steeper when he discovers love by lifting a large heart. In the end, the hill does have a steep angle, turns into pinkish colour, and the human falls into a void by ripping a heart shape piece of the hill. In this interesting work, there is no synchronization between the images and music, but Winter's general flow in Allegro Non-Molto dramatically supports the constant rolling down. Vivaldi's same music was also visualized by Korean filmmaker Erick Oh's *Symphony* (2008), where a black sentiment creature is trying to escape through an abstract world full of blackness. Similarly, Israeli animator Michal Levy's 'Dance of Harmony' (2017) depicts Bach's famous Prelude in C Major with some spheres in a minimalist way.

It is also worth mentioning, the use of technology can be seen in Roman Beranek's Pixel Symphony (2017), where he visualizes Vivaldi's The Four Seasons Recomposed by Max Richter by Zurich-based studio named ‚Projektil'**.** In this work, Beranek employs very simple graphic elements similar to pixels that are projected on three walls around the orchestra pit. Last but not least, London-based creative studio Optical Arts' experimental short films on Bach's *Toccata and Fugue in D Minor* as *Tocatta* (2020) and Shostakovich's *Fugue in A major* as *Fugue* (2021) creatively render the demolition of everyday objects synchronized with the music. In *Tocatta,* as the introduction part Tocatta starts, cutlery, knife, candles on the white surface levitate synchronized with the rhythm. While the Tocatta part is finished loudly, glasses filled with wine fall into the white surface and crash, accompanied by a falling knife. Thus, here the scene evokes violence. When the Fugue section is heard, objects falling and demolition are rewound. The same idea is varied throughout the film. Towards the end, all the objects that have been used in the film fall onto the white surface and crash in deray. The film ends with a spinning plate as an allegory: As the spinning ends, the plate falls slowly, but it does not crash. We can observe the very same idea on *Fugue.* We see the everyday objects on a white platform. The cut here is synchronized with Shostakovich's music. As the chord alters, a pendulum with a dumbbell tied on it hits and destroys the objects. In the end, the pendulum hits a pile of books. Books fall and disperse but do not get crashed. While the *Fugue* offers a textural and poetic richness like *Toccata* that is suitable for the visualization of both baroque-based pieces, the message here can be this: Objects can be demolished, but the ideas (books) cannot.

One of the most remarkable works is Dudok de Wit's short animation "*The Monk and the Fish"* in 1994 has its place in Baroque music visualization. 1953 born Dutch animator, illustrator, and director Michael Dudok de Wit is known for his short animated movie *Father and Daughter* (2000), which won a BAFTA, the

2001 Academy Award for Best Animated Short, many other awards at festivals, and *The Red Turtle* (2016), animated fantasy drama film that is premiered at the 2016 Cannes Film Festival and nominated for the Best Animated Feature Film. Dudok de Wit's experiments with music can be seen in his minimalist animation, *The Aroma of Tea* (2006), which is a story of a dot, finding its way through the abstract shapes similar to Zen brush strokes with the accompaniment of Corelli's Baroque music.

But before all of these works, he created "*The Monk and the Fish"* in 1994 (Fig. 6)*; a short animated film* tells the story of an insistent monk trying to catch an elusive fish with the synchronization of a baroque piece Corelli's "La Follia" based on the composer Serge Besset's new version for the film. This film can be seen as a highly artistic use of Baroque music.

*Figure 6: Scenes from "The Monk and The Fish" (1994)*

2. The Plot - Story

*The Monk and the Fish* starts with the tweet sounds while birds are flying around the temple tower, then Corelli's music starts playing. We see the distinct parts of the colossal and almost surreal temple. Monk stands in the middle of one of the circular temple bridges that are connected to a large pool. A fish jumps out of the water; as an answer, the monk jumps on the ground to show his excitement.

Monk goes back to his room to take some tools to catch the fish. After coming back, he chases the fish with the cast. His next try is with the fishnet, but he fails again.

The monk reads a book in his room at the temple. Sharp sun lights come through the window, fill the room. He calls for help from the other monks. As his friends walk to the circular pool, they do not want to help and leave the scene. He gets angry; as he attempts to leave the scene, he trips over a bucket. But he tumbles and falls, bucket falls into his head.

Monk cannot sleep in his room due to thinking of catching the fish. He wakes up at night, goes to the circular pool, and lights up the candles very fast to see around. This time he uses a bow with an arrow. As he fails again, he falls into the pool to chase the fish while swimming. Chasing continues through water channels. The monk keeps following the fish in surreal labyrinthine places with a perspective view. As they are about to leave the giant surreal temple and water channels, the monk stops chasing the fish, and they start to levitate. They fade out in the sky and move away from the camera; music fades out.

3. Locating Dominant Tendencies

The movement of the Monk and other events are totally synchronized with the modified version of Corelli's La Folia. Apart from this soundtrack, the only noise in the film is birdcall. It is heard at the beginning and end of the movie in the daylight, right after the night scene in the middle of the movie, and the moment while the monk thinks and reads a book in his room. Mostly, the birdcall is an indicator or signpost of passing the time, symmetrical component of the film as we hear it in the introduction and final scenes. All the birdcall sounds are slightly heard in harmony with La Folia, and they do not cause any distraction.

4. Spotting Important Points of Synchronization

In the beginning, when the fish jumps out of the water, as an answer, the monk jumps on the ground to show his excitement. The last notes of *La Follia*'s intro are synchronized with his jumping movements.

Monk goes back to his room to take some tools to catch the fish. Monk chases the fish with the cast. For a while, his movements are mirrored in the flute sound while the clarinet represents the fish. As the monk tries to catch the fish in a perspective view, a clarinet passage accompanies his movements. In the second improved theme, the monk comes with a fishnet. The chasing in the pool is represented by the duet of clarinet and flute. As the second improved theme ends, strings take over the wind instruments. Gloomy strings accompany the scenes where the monk reads a book in the room. Sharp sun lights come through the window, fill the room. As the third theme evolves, the monk calls for help from the other monks. As they walk to the circular pool, their bouncing is represented with the clarinet in low pitch due to the heaviness of many monks. Clarinet's sound turns into a monk's voice as he tries to explain the situation.

As he tumbles and falls, a bucket falls into his head. Bucket falling is represented by a bell sound. The scenes end with a silence longer than the one in the original music after the falling of the bucket. Monk cannot sleep due to thinking of catching the fish. His thinking is mirrored in a flute solo. He wakes up at night, goes to the circular pool, and lights up the candles very fast. We hear vibraphone sound for the very first time as it is synchronized with lighting up the candles. The next morning, we see the architectural character of the temple with the accompaniment of music mixed with bird sounds. Suddenly, the duet of sharp flute and clarinet duet accompanies his movements. This time he uses a bow with the arrow as their pointed shapes are mirrored in the sharpness of music. As the monk's jumping and bouncing are represented by flute sound, he falls into the pool to chase the fish while swimming. For the first time, we hear string pizzicato to represent the difference in the chasing as it continues through water channels. The tempo gets faster. While chasing continues through the narrow water channels, a timpani sound is heard for the first time as it strengthens the main theme that represents his bouncing. Monk keeps following the fish in surreal labyrinthine places with a perspective view, and almost every instrument in the music is heard. As they are about to leave the giant surreal temple and water channels, the monk stops chasing the fish, and they start to levitate; the music descends to flute and soft string pizzicatos in slow tempo. They fade out in the sky and move away from the camera; music softly fades out.

## 5. Narrative analysis

The architectural tone of deWit's animation in the film seems Christian, but the monks' appearance and the progression of the story have Buddhist elements similar to *The Aroma of Tea*. Moreover, *The Monk and the Fish* found its inspiration from *"Ten Ox-Herding Pictures,"* which is a series of Zen poems and images from 12th Century China, illustrating the journey to enlightenment through the story of an oxherd's strife with an incoherent bull. Despite the fact that he has changed his style to Miyazaki animation in his latest work, *The Red Turtle* (2016), with the collaboration of Ghibli studios, as in all of Dudok de Wit's works, there are no close-up shots, and we see the characters mostly from a distance. Therefore, while the atmosphere and architecture make their contribution to music visualization, the main characters almost act as abstract elements. Even the monk himself seems like a soft-edged triangle, with a little sphere on the top rather than a character. As a result, his works are usually formed of abstract, figurative, and spatial layers in the context of spirituality and mostly Baroque music visualization. Here, as Cook notes, the connotative qualities of the music complement the denotative qualities of the words and pictures, or the music

interpret the words and pictures (Cook, 1998, p. 22). Last but not least, water as an element plays an important role in the film. Apart from being a habitat of the fish, it intertwines with the surreal architecture and creates a soothing effect similar to meditation. As de Wit puts it, the images that follow represent the essence of the Zen philosophy. *The Monk and the Fish* is not a story about the solution of conflict; it's more about the rise above the conflict, the rise above duality (Molinoff**,** 2009). Moreover, he has always been under the influence of Japanese, Chinese, and Korean calligraphy due to their way of leaving large space. Surely that is the most common point between his *The Aroma of Tea* and *The Monk and the Fish,* where the colossal space overwhelms the character or main element in the film.

## 6. Comparison

Soft tones of yellow and orange dominate the visuals as soft blue-toned sky and water serve as a background element as a contrast. Monk's suit is surely a strong orange as in the suits of Buddhist monks. As orange is red brought closer to humanity, so removing red through blue creates Violet, which has the tendency to move away from humanity (Kandinsky, 1946, p. 71). When compared with the frame of mind of some individual, it would be capable of the colour representation of madness — not melancholy or hypochondriacal mania but rather an attack of violent, raving lunacy [5, p. 63-64]. For Eisenstein, it is more related to religion but also agrees with Kandinsky as he notes, in very large measure, no doubt, this was clearly the outcome of the whole of the Christian revulsion against the classic world the rejection of everything which stood as the symbol of joy and pride (Eisenstein, 1957, p. 126).

## 7. Audiovisual Canvas

De Wit successfully uses the music to builds his narrative without tilting it too far towards melodrama. A similar idea can be observed in Spanish director David Diaz's ‚Adagio' (2010), where the character unprofessionally and childishly runs and dances through the fields with the accompaniment of Johann Strauss and Mozart's music.

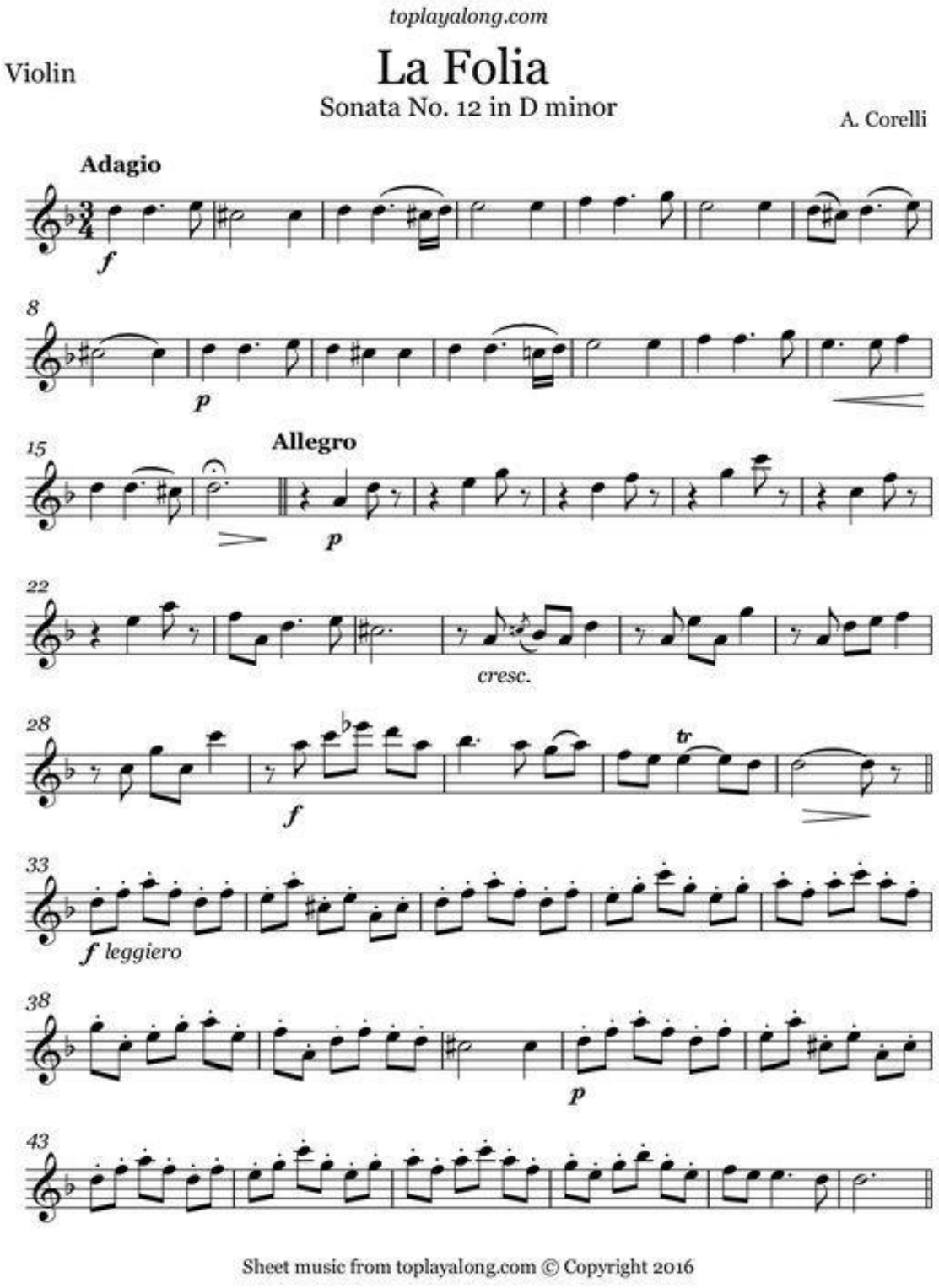
## 9. Leitmotif

Moreover, the common Baroque music form Fugue was also valuable as it provided Eisenstein with a form where there is a marriage between the instant and

the successive, between the vertical and the horizontal, which is also something present in Chinese and Japanese scrolls. (Robertson, 2009, p. 43). A clear example of fugue structure can be seen in Swiss animator Georges Schwizgebel‘s Fugue (1998), where the architectural tone is similar to Maurits Cornelis Escher’s mathematically inspired world accompanied by a post-modern fugue in piano. Here the camera almost continuously rotates, objects and structures are intertwined with each other with a complex story; thus, the whole animation looks like a perceptual experiment, as in Schwizgebel‘s other works, similar to Wes Anderson‘s Baroque-like gestures, and placing occasional harmonic nods to the sequences. In other words, many of Schwizgebel's works are variations of space-time. As a result, we are presenting a new space that we have not experienced every day. Special In the works of Higue and others, space is constantly reconstructed (Hong Kyun, 2016, p. 84).

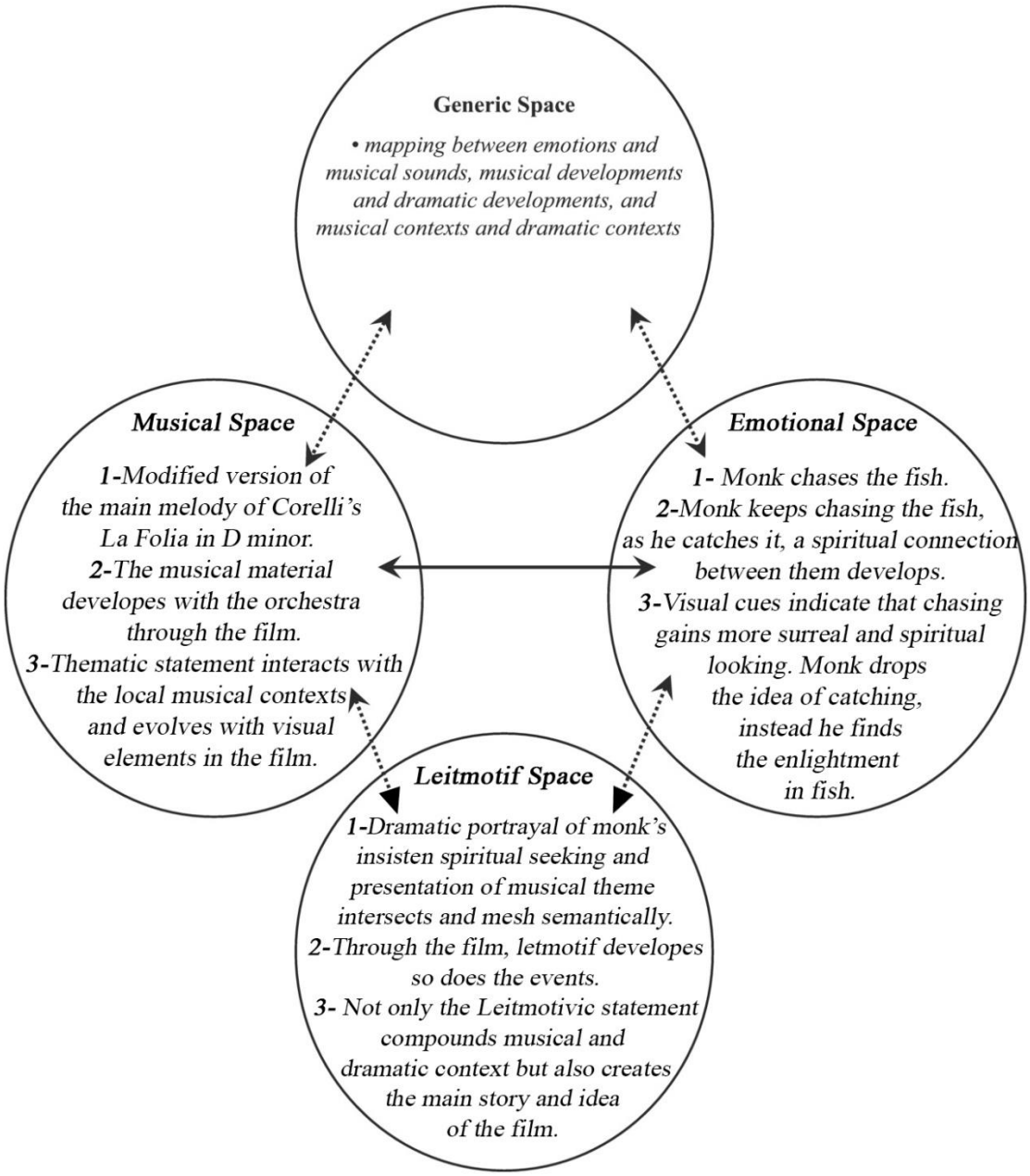
The general idea of La Folia can be seen below as we see the first six bars usually define the architecture and environment, while leggiero (pizzicato) section is mostly mirrored in Monk’s movement and chasing.

Table 14: The introduction of La Folia. (toplayalong.com)



In the framework of La Folia use, a CIN attempt for The Monk and Fish can be seen below;

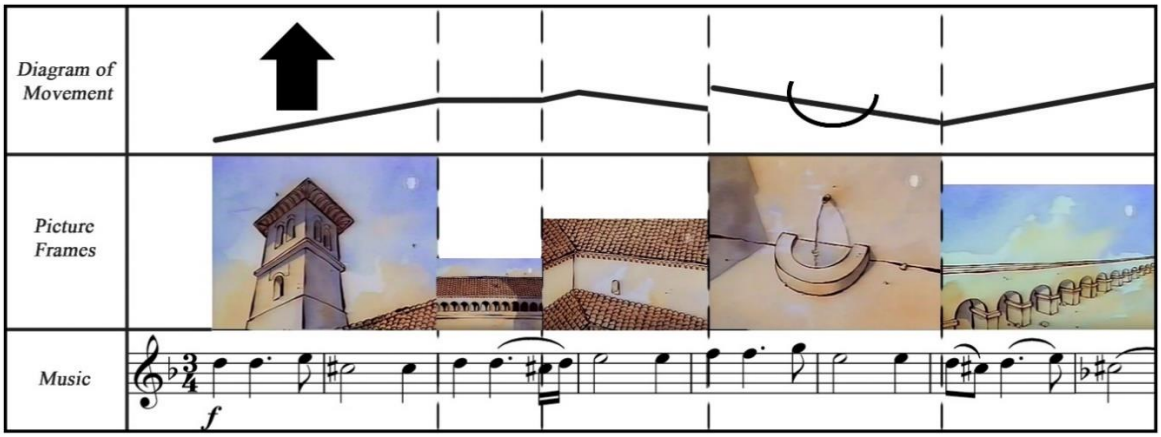
Table 15: CIN leitmotif attempt for Monk and Fish.



10.Graphic Analysis.

The introduction section shows a tendency to have vertical montage ideas. Here the first bar's peak can be mirrored in the temple tower while the next short bar's linear movement is seemingly represented by symmetrical and horizontal view of temple arcs under the high roof tiles. In the third bar, short trill echoes in the corner or the one small window of the temple. As the main idea comes to an end in the fourth bar, the water element is shown. We see a u-shaped water fountain, slightly aligning with the formation of the notes. The last passage offers an endless perspective of a water bridge, as the main idea of music ends. Seemingly the perspective lines (diagram of movement) randomly match with the notes because they are heading in a different direction; however, the change in chords is synchronized with perspective formation, as can be seen in the figure (Table. 15).

Table 16: The graphical analysis of The Monk and the Fish, first section.




Right after the previous analysed scene, the title of the film is shown. In the next scenes, the monk walks through the temple. The first bar here is visualized by a walking monk with the first frame, and its improved theme is expanded with the perspective in the second frame. As the chord changes and low pitch is heard, the monk goes downstairs (Table. 16). As the musical sentence ends in the fifth bar, the monk enters the temple through the arch door. He comes back with the fishhook in his hand, through the same angle and temple hall; thus, the connection between the end and start is set. Furthermore, the general symmetry is completed as the monk settles down with a fishhook to catch the fish, next to the temple pool, as in the first frame (Table. 17).

Table 17: The graphical analysis of The Monk and the Fish, second section.

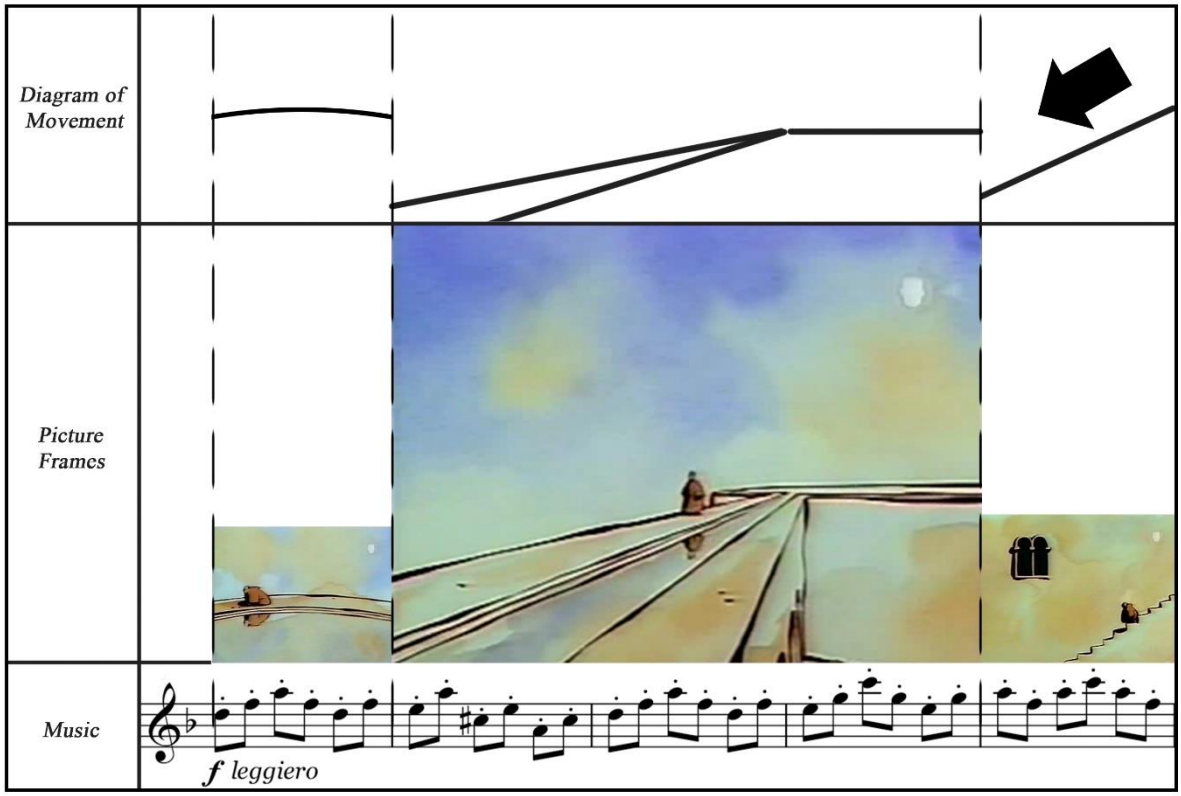
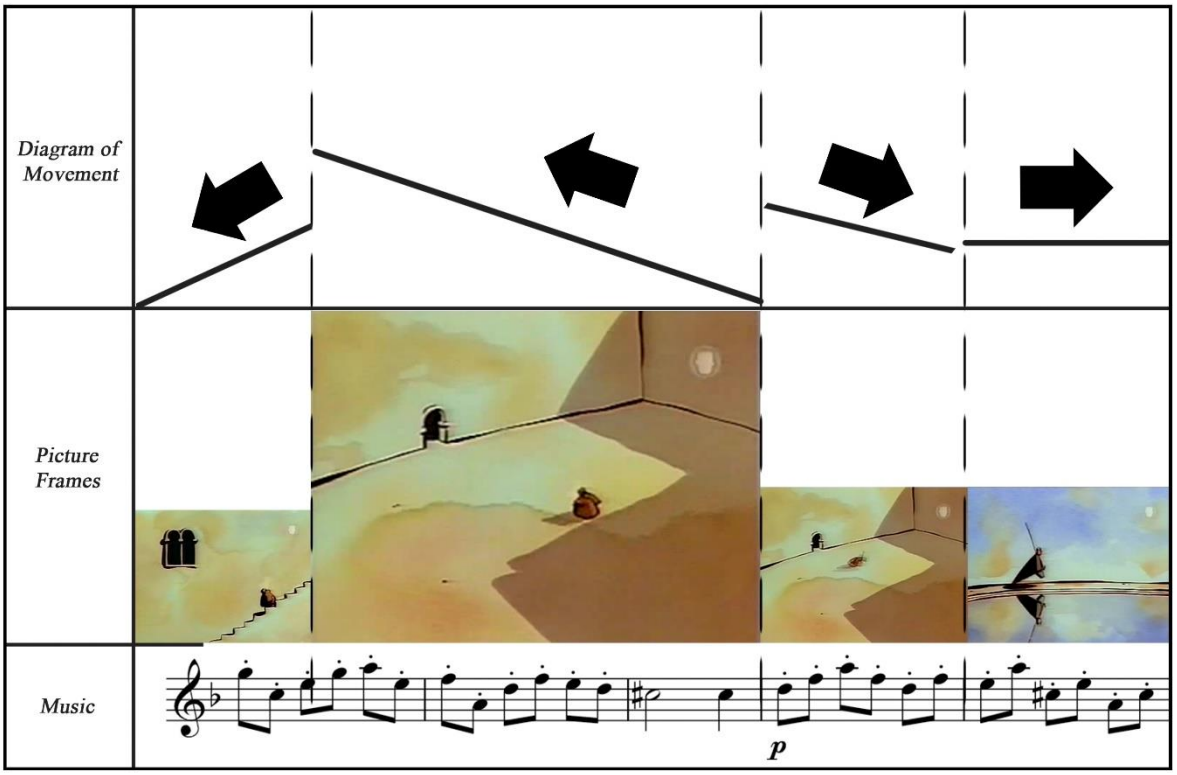



Table 18: The graphical analysis of The Monk and the Fish, third section.



As a result, architectural geometry has been used for the main theme of La Folia. Even though the perspective lines are not matched with note formation, the melody supports the visualization that is based on static shots, with the movement of a small figure, Monk himself.

### 3.2.3 Sleeping Betty[4]

1. Background

Music has always played a pivotal role in awarded Canadian illustrator and animator Claude Cloutier's (1957) animations. The first notable use of music can be observed in his work "From the Big Bang to Tuesday Morning" (2000), where he tells the story of evolution on Earth in a humoristic way because this evolution occurs for the head on a lounge suit. Here, Canadian film score composer Pierre Desrochers' (1955) approach resembles the minimalist scores of Philip Glass. Neither there is silence nor the sudden rise of tension in the music. As a result, music suits the organic shapeshifts in the animation, and rather than a synchronization, music mostly serves as a background element. Some transitions in the metamorphoses are mirrored in sharp horn sounds with the help of percussions such as timpani and cymbals. Furthermore, music gives us a sense of sublimity of human beings, and nothing is absurd about music. This also creates another counterpoint with the absurd narrative. Towards the end, we see some military figures on the lounge suit, and as they are hit by some weapons, the use of percussion increases to visualize these impacts. The animation ends by showing the director himself in the same suit, trying to drive his car through the traffic jam. This work is very similar to British production duo Hammer and Tongs' video clip for British big beat musician Fatboy Slim's (Norman Cook) hit song "Right Here, Right Now" (1999) in many aspects. Here we also see the entire human evolution process from the side view (similar to side-scrolling type video games) with a twisted ending, and music serves as a background element. Cloutier also collaborated with Desrochers in his "The Trenches" (2010), where he visualizes some memories from World War One. A bricolage of diegetic, non-diegetic, and even meta-diegetic sounds blended with the dramatic and sorrowful melodies are mirrored in Cloutier's artistic brushstrokes.

Last but not least, his satirical latest work "Carface" (2015) can be seen as a postmodern Videoclip for Doris Day's iconic song "Que Sera, Sera" (Whatever Will Be, Will Be) (1956). This song first appeared in Alfred Hitchcock's suspense

[4] https://www.youtube.com/watch?v=C6KDz8MIgmM [Accessed 17 September, 2021].

thriller “The Man Who Knew Too Much” in the same year, just before the final scenes of the movie, to increase the dramatic effects by creating a contrapuntal effect. However, it seems Cloutier is not referencing this movie but the lyrics of the song. In this animation, we see singing, dancing, or jumping cars, in other words, humanized cars, as in a typical Disney movie. As they sing Day’s iconic song, they immerse deep in oil and break up into pieces; representative globe with a petroleum refinery on top of it explodes. This work is protesting today’s big oil-based civilizations and the dark future due to environmental pollution as we hear the irony in the lyrics, “The future’s not ours to see.”

2. Plot-story

One particular work from the director’s oeuvre, “Sleeping Betty” (2007) (Fig. 7), where he artistically distorts Antonin Dvorak’s Ninth Symphony (1893) and some other classical music pieces with composer Normand Roger’s adaptation, draws our attention. This awarded short animation, drawn in ink, is a classic example of the anachronistic and playful world of director Claude Cloutier. In a world of odd people and surreal events, *Sleeping Betty* is stuck in bed, and she cannot wake up. While the prince on a horse who resembles Don Quichotte makes his way to Betty's bedside, the king, a doctor, and then a witch tries to wake her up in turn, but these attempts do not work. After the arrival of the prince, he and his horse kiss Betty, but it does not work either. The alarm clock on the bedside table, next to Betty’s bed, is the only object that enables her to wake up. In the final scene, the clock rings, Betty wakes up and turns the clock off. This animation can also be read as a political and social satire.

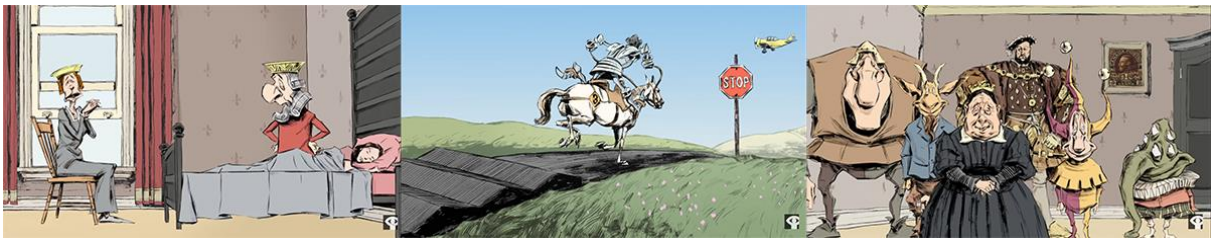



*Figure 7: Scenes from "Sleeping Betty" (2007)*

3. Locating Dominant Tendencies

The modified versions of the first and last movements in the Ninth Symphony of Dvorak's with the accompaniment of Cesar Franck's The Accursed Hunter, Tchaikovsky's The Sleeping Beauty, and passages from Gustav Mahler's First Symphony dominate the soundtrack of the film. As for the noises, characters mumbling, crying, and the many sounds of objects, including instruments. The music and noises are interlaced with each other; as a result, the soundtrack is a bricolage work. Here, Cloutier's universe is similar to foley artist Mario Wienerroither's *Musicless Musicvideos* project, where he distorts and modifies the music or sound of famous video clips. As Simone Dotto (2016) puts it, Mario Wienerroither's work can be interpreted as a critical analysis of the biases underlying our viewing and listening habits. With *Musicless Musicvideos*, the aural and the visual elements we happen to experience together are actually worlds apart. (Dotto, 2016, p. 37)

4. Spotting Important Points of Synchronization

Prince Henry lives in an absurd castle named S.O.S Prince Inc. When Henry starts his mission to reach Betty, he goes down to the castle basement like a firefighter by sliding on the pole to get on his horse. This is the moment when we start to hear Dvorak's Ninth Symphony's last movement's main theme. The music is heard when he is on the move with his funny-looking horse, and during this moment, we also witness some absurd minor events by other horse riders nearby. Cloutier cuts the scene unexpectedly, and a kind of Faun next to Betty's bed plays the same melody in a pathetic way. After a while, Prince, on his way, sees the "stop" sign and suddenly stops. While he was slowing down the horse, his metallic knight armor makes a creaking sound, and this mechanical sound accompanies the main melody in the symphony.

As the animation continues, things get more random. In one scene, one flat home slips down on the steep hill as the prince continues his way. This scene is accompanied by Dvorak's Ninth Symphony's first theme for a very short time. Prince continues his way while a witch is trying to cast a spell on Betty to wake her up. During this moment, we continue to hear Dvorak's music. Music randomly accompanies the events here with the mixture of mechanic sounds as the witch transforms Betty's head into a small car. The music stops when Prince Henry hits a traffic sign.

Having been tired of this accident, Henry decides to get a taxi with his horse. Taxi is being pulled by a man like a carriage. As the main theme finalizes itself, Henry arrives at Betty's home, kisses her, but this does not work. His horse kisses her, but it doesn't work too. While Dvorak's music fades out here slowly, we suddenly hear the sharp sound of an alarm clock. Betty wakes up, turns it off, and the animation ends.

## 5. Narrative Analysis

The events are shown in linear flow, the queen and king are looking for a solution for the princess's illness, and the absurdity of characters is mirrored in music and sounds; thus, the film is not infected by the character's emotions. In general, Cloutier uses the main theme of the last movement of Dvorak's Ninth Symphony as a clear leitmotif of Prince Henry, who also resembles the real Prince Henry in the UK. The glorious melody of this theme accompanies series of absurd, funny, and surreal events, and for this reason, the use of music here is also contrapuntal. As a result, while Dvorak's music, especially the final movement of the Ninth Symphony, forms the body of the film, Franck, Tchaikovsky, and Mahler's music starts and finalizes the narration.

## 6. Comparison

Seemingly the animation's main concern is the absurd visualization of distorted classical music, and here the randomly chosen colours do not play a vital role, but Cloutier's sketch-based lines are drawn in ink that resembles caricature increases and supports the deep irony.

## 7. Audiovisual Canvas

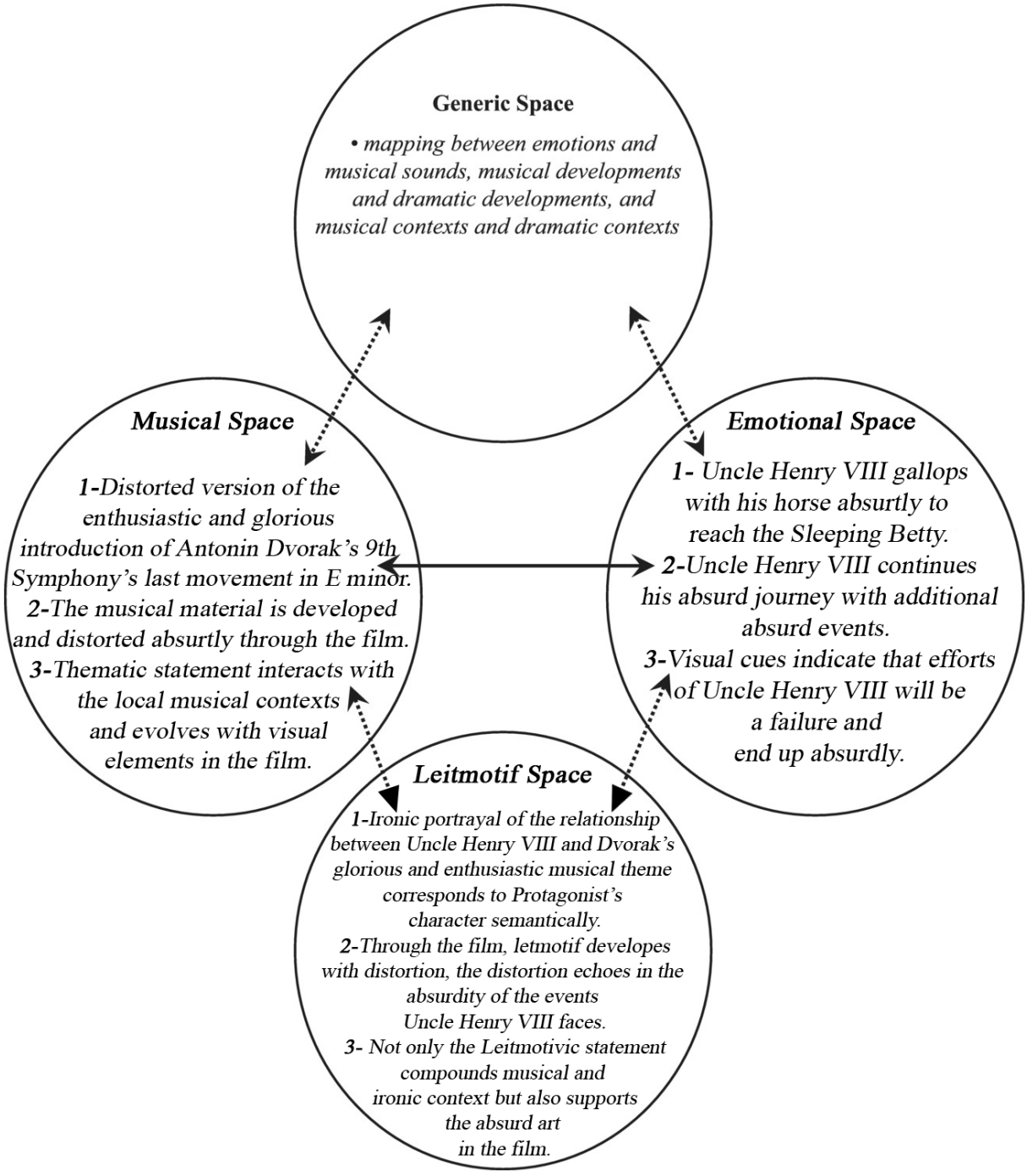
During the animation, Cloutier modifies Dvorak's music by removing, modifying, or replacing some instruments' sounds, cuts, repeats, or plays the melody by characters absurdly and unexpectedly, and this use reminds us of not only a Surrealist but also a Dadaist approach. Apart from Dvorak's music, the remaining animation is accompanied by Tchaikovsky, Mahler, and Franck's classical music pieces, as I mentioned before, using specific instruments for specific movements with a mickey-mousing style. Last but not least, the cultural code of glorification, nationalism, and nobility of Dvorak's music here has been dramatically changed for the sake of absurdism in a similar way to Samuel

Barber's *Adagio* (1986). For instance, while *The Adagio* has been viewed as a melodramatic tool for the romanticization of Merrick's death in David Lynch's *Elephant Man* (1980), in Liam Lynch's *Tenacious D* (2006), the choral version of the Adagio (Agnus Dei) is used to "sanctify" JB's new guitar, creating a sonic halo of ethereal voices around it, marking an ironically divine moment devoid of any sadness (McQuinn, 2009, p. 464).

8. Leitmotif

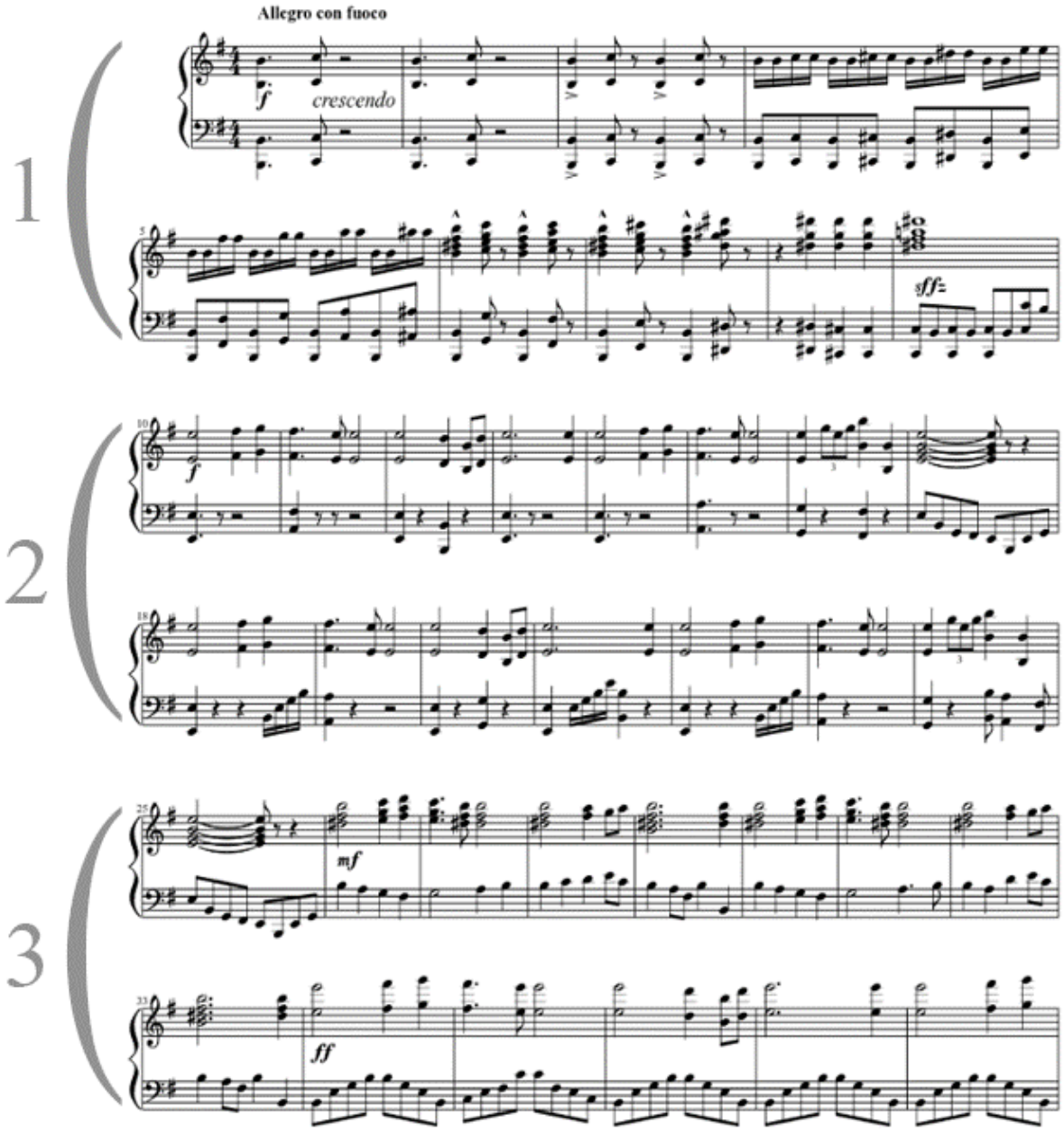
In the animated film, each time we see the protagonist, Prince Harry, we hear the distorted version of the introduction of Dvorak's Ninth Symphony's last movement, and in addition to that, a passage from Dvorak's Ninth Symphony's first movement is heard as we see the prince for the last time in queen's princess's house with his horse. Ironically, as the prince gallops with his horse to save the princess, in the meanwhile, a faun tries to wake her up by playing the prince's leitmotif (Main melody of the last movement Ninth Symphony) with old pan flute, tuba, and the guitar respectively and it fails as expected when he blows the guitar instead of playing with hands for the last attempt. Seemingly, Cloutier underlines and strengthens the main leitmotif in the movie in an absurd way. As a result, it is possible to create a CIN table for the prince's leitmotif, as can be seen below.

Table 19: CIN table for the prince's leitmotif




Heroic and glorious passages from the introduction part of the Dvorak's 9th Symphony's last movement is mirrored in Uncle Henry VIII, and the events unfold respectively with a linear flow of music. Here the first part is heard when the protagonist leaves the fire station, the second part as he gallops with his horse, and the third upon the arrival at Betty's house. However, other pieces of classical music pieces are also squeezed in between the numerical passages (Table.19).

Table 20: Dvorak’s 9th Symphony’s last movement usage in Sleeping Betty.



### 3.2.4 Preston[5]

1. Background

Preston (2016) (Fig. 9) is a collaborated animated film of the digital art school ISART Digital in Paris, and it is directed by visual effect artists Gabriel Amar, Louis Doucerain, and their crew. The film violently visualizes (two minutes) a short version of Franz Liszt's famous (nine minutes) Hungarian Rhapsody No.2 in C sharp minor. Preston inherits the contrapuntal effect of intense brutality that is mirrored in classical music and uses red and black colours that are typical for representing violence. This is surely not a new approach, but Preston adds its artistic interpretation. That being said, the violence itself has already always been in music. As Adorno notes, some of the greatest symphonic movements of Beethoven take on the violence of the repressively imposing, authoritarian 'That's the way it is and goes beyond what is happening musically in a gestural decorative manner is Beethoven's coerced tribute to the ideological nature of music (Adorno, 2002, p. 412-13) and this type of melodic and harmonic Dionysiac music in particular induced feelings of awe and terror (Nietzsche, 1993, p. 20). Music also was a participant in the cultural work of persecution and genocide (Clayton, Herbert, and Middleton, 2003, p. 57) as it, together with the twentieth century, witnessed massive violence and death.

*Figure 8: Scenes from "Preston" (2016)*

The most notable example of using classical music use for violence is Stanley Kubrick's *A Clockwork Orange* (1971), a striking symphony of violence, which remains perhaps the most prescient film about the future that we now inhabit. (Monaco, 2000, p. 323) In his movies, he believes that violence is a cause to exist, and the civilization human creates to repress that violence lies under them. (Soyer, 2017, p. 35) In fact, Kubrick even fulfills Rossini's promise of a happy ending, as the film finds Alex free of his 'cure', having returned to his original state of

[5] https://vimeo.com/177237133 [Accessed 17 September, 2021].

‘innocent grace,’ fantasizing happily about sex and violence and the ‘Ode to Joy’ finale of Beethoven’s ninth symphony (Leech, p. 120).

Perhaps the most effective use of ironically deployed art music in film, Kubrick’s *A Clockwork Orange,* remains a monument to the possibilities of music’s role within film narrative. (McAllister, 2012, p. 53). Another same employment of Beethoven’s music (Fur Elise) can be seen in Gus Van Sant’s Elephant. However, knowing Van Sant’s meticulous attention to detail and the fact that most of his musical choices are infused with some personal significance or employed as an homage, one suspects that Rota’s music has a hidden meaning, in the same way that Beethoven’s music as played by murderer-to-be Alex in Elephant is perhaps a nod to Stanley Kubrick and the murderer—also named Alex—in Kubrick’s A Clockwork Orange (Wierzbicki, 2012, p. 83). As a result, the ironic deployment of Beethoven exposes two deeper contextual layers. The first has to do with what we, as audience members, know about the characters portrayed in our most common cultural medium, film. The second deals a disruption to our notion that we, as a member of society, are able to identify, predict, and understand the behaviors of those who inhabit it with us. (McAllister, 2012, p. 146)

In Haneke’s films, in which information is most effective, and often traumatically, conveyed through technologized, impersonal communicative vehicles (videotapes, letters, drawings) or, more brutally, through violent action and gesture (Coulthard, 2010, p. 2). and music plays an important role in this world of violence. For instance, in the intro of “Funny Games,” while the family listens to a diegetic opera aria and we see them in the car, we start hearing a death metal song as non-diegetic when we see them behind the windscreen of their car to indicate upcoming violent events. Similar use can be observed in Tarantino’s *Inglorious Bastards,* where he has clearly shown a new and further developed understanding and control of the connection between violence, male identities, and the preexisting score (Bamus, 2012, p. 42). Sometimes, specific tones such as low notes express danger, violence, and menace as in Spielberg's *Jaw*; the low register can also be associated with the physical position of the shark lurking beneath the surface of the water (Lipscomb and Tolchinsky, 2004, p. 20). Despite all the violence, there is spirituality, and Kandinsky sums up all; all these are the elements that create the spiritual atmosphere. Suicides, murders, acts of violence, low and unworthy thoughts, hate, hostility, egotism, envy, "patriotism," partisanship are all spiritual elements of spiritual beings (Kandinsky, 1946, p. 75), and this purification can be easily observed on Preston’s main character ‘pianist’s relieved face each time he witnesses violence in the animation

2. Plot Story

At the beginning of this animated film, a skinny pianist finalizes his last preparations for a recital. He checks his suit in front of a mirror, cracks his knuckles, and arrives at the stage. As the spotlights are turned on, we notice the stage is actually not a concert platform but a boxing ring, and the pianist acts as a referee. Two muscular boxers, as one white and one black man, hit their boxing gloves to each other's like a salute, and the match starts with the ring signal.

The camera turns around the ring from a distance for a very short time to show the environment. As the dreamy melodies of Hungarian Rhapsody's Friska are heard, boxers warm up. As we feel dizzy, we are also shocked by the punching in-face scenes in slow motion. Here, the pianist seems he enjoys the violence very much. We witness how wounded, tired, and devastated they are. When the rhapsody ends, we see the ring from above with the blood take the shape of musical notes on it as an irony. In the final scene, the pianist finishes playing the piano, stands up, and greets the audience in a large concert hall.

3. Locating Dominant Tendencies

In the opening scene, we hear only the natural diegetic sounds in the animation, such as applause from the audition, the pianist's preparation, and walking. The shortened version of the Rhapsody starts with its fast section, "Friska," a type of Hungarian folk dance, and the dark and melancholic slow section "Lassan" has been removed from this version for the sake of animation's pace.

Without a doubt, the most important dominant element here is the synchronization between the boxers punching sound and the beats of Hungarian Rhapsody's main theme to connect the violence with music. Towards the final, this connection is strengthened by the sound of breaking pieces and falling spotlights on the stage.

4. Spotting Important Points of Synchronization

As the boxers warm up, they seem thumping out with their training shoes along with the pianist. As the Friska gains momentum, so do the warming-up movements of boxers. We also see their empty-looking, brainless faces, and comparing to music, pianist's wise, determined but corrupted expression or his improvised hand gestures, this visualization creates a counterpoint for the music. The match starts when Friska's main theme in F-sharp major is heard. Each beat in the main theme is represented by boxers' blows. Boxers make circles on the ring, the pianist closes his eyes and assumes he is playing the piano, blood droppings are synchronized with the Rhapsody's rhythm.

Directors connect the final energetic and chaotic Cadenza (improvised, virtuosic) section to the Friska and dispose of the passages between them for the sake of visualization. When the Cadenza starts, the camera revolves around the ring swiftly with flash effects.

Cadenza enters its second chaotic stage in “Presto” (the name of this animation also comes from here) to finish the Rhapsody; the events go surreal. Spotlights explode, ring ropes break, ceiling rig of the stage collapses. Final beats are synchronized with punches in boxer faces in slow motion.

5. Narrative Analysis

The linear narration is mirrored in the linear flow of the music; a boxing match starts, boxers fight, and the match ends, so does the Friska section of Hungarian Rhapsody with violence.

6. Comparison

The caricature-based 3D modeling style is completed by realistic movements and gestures of the characters. Dominated by red colour (blood as the indicator of violence), this contrapuntal visualization echoes in contrast between violence and Hungarian Rhapsody.

7. Audiovisual Canvas

As the remainder of the mickey-mousing Piano scenes in Tom and Jerry, Preston’s main difference here is video game based story, as it is about a boxing match between two boxers, and the music use is similar to the one in video games because their movements and punches are synchronized with the music. As Loydell notes, new meanings were created through juxtaposition and counterpoint of music and game. At times, songs that were chosen took on irony by being juxtaposed with the violence of the game (Collins, 2013, p. 131–132), and this increases players’ enjoyment of the game in a similar way to entertain cinema audience.

The movement and hand gestures of the pianist do not only rule the match or conduct an imaginary orchestra with playing the piano but also direct our

perception. Seemingly the pianist performs the combination of all types of movements (sound-producing, ancillary, communicative) as it can be seen below:

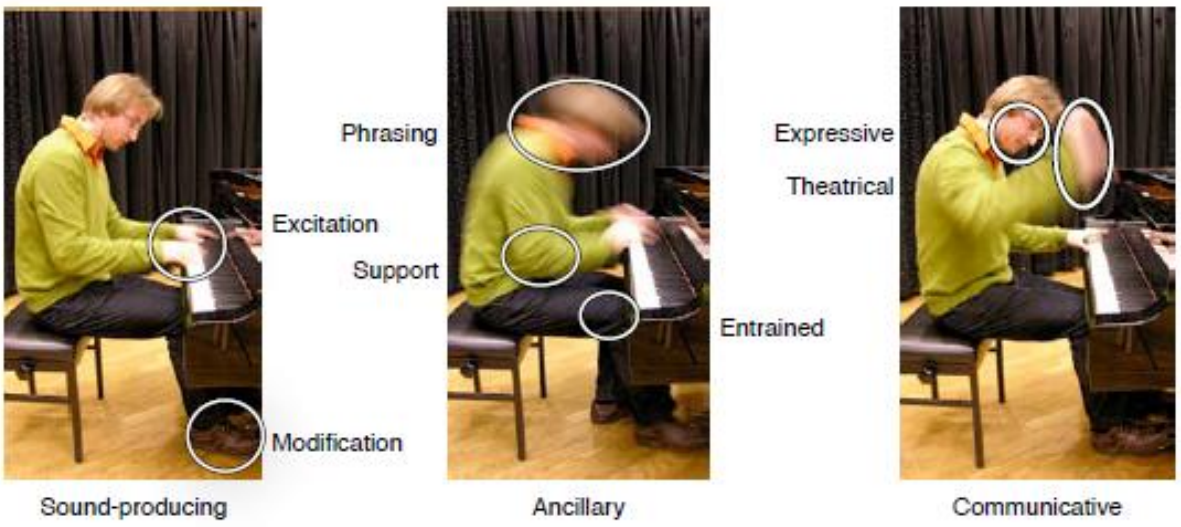
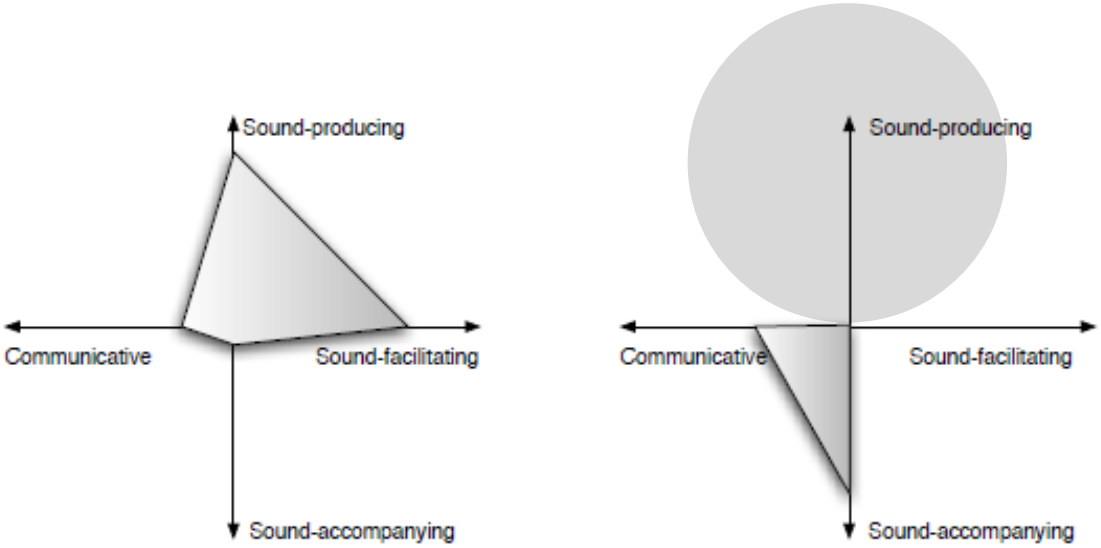



*Figure 9: Examples of where different types of music-related movements (sound-producing, ancillary, and communicative) may be found in piano performance. (Jensenius, 2007, p. 48)*

This combination makes places the pianist as an intermediary between the music producer and dancer. As Jensenius notes and as it can be seen in figure 9, the musician's movements have a high level of sound-producing and ancillary function, while the dancer movements have a high level of sound-accompanying and some communicative function (Jensenius, 2007, p. 48) [51, p. 48].

Table 21: Dimension spaces illustrating how the music-related movements of a musician (left) and a dancer (right) may be seen as having different functions.

(Jensenius, 2007, p. 48) [51, p. 48]. Here the adscititious circle on the right diagram may represent the diameter of Preston's pianist.




Movements similar to this range can be mostly found in absurd animations, and moreover, the exaggerated movements of Franz Liszt can be seen in Göschl's caricatures (Fig.11).


Figure 10: Göschl, A. (1873, 6 April). Caricatures of Liszt. Borsszem Jankó, 6 April 1873. (https://www.briandickie.com/my_weblog/2008/12/dont-miss-barenboim-at-the-harris.html) [Accessed: September 1, 2020].

## 2.3 Interactive Media

This section focuses on live performances by using interactive media tools as in UCS's "*Pictures at an Exhibition"* (2011), as the author analysed earlier. Surely technological developments in the music visualization field increased the audience's expectations of performances as well as artistry. Firstly, technology influenced the way music was orchestrated, recorded, edited (i. e., tape manipulations), and finally mixed (Walus, 2012, p. 115). As McLuhan notes, technological tools become our extensions as human organs, and here the projectors around the orchestra become our new third eye (McLuhan, 1965). Here we should note that, apart from technology, interactive media, together with the concept of sound installation art, did not emerge in a vacuum. Instead, it grew out of an earlier history of 20th-century Western art and music that attempted to blur the boundaries between art and everyday life; this history included the efforts of the Futurists, Surrealists, Dadaists, Situationists, Fluxus, and artists and composers like Marcel Duchamp and John Cage (Ouzounian, 2008, p. 126). Another advantage of the technology is that the removal or partial removal of the orchestra may interfere with the auditory enjoyment. As a result, the use of technology in classical music regarding visualization is increasing each day. On the other hand, the interactive performance also poses many technical challenges, resulting in new languages and special hardware, including sensors, synthesis methods, and software techniques (Dannenberg, 2005, p. 25). Bowens supports this idea with some details; as he mentions, the problem is that real-time digital visualizers are supplied with insufficient information to effectively inform their visuals. A real-time digital visualizer should attempt to extract as much of the expressive and technical information as possible from the music, then apply this data to affect the generation of images (Bowens, 2008, p. 3). To sum up, if the concept of musical structure is applied in conjunction with the musical theory, then the Interactive visualization of the music can be an effective tool for the exploration of the musical information (Isaacson, 2005).

A relevant contemporary example here would be Tomas Gremmler's 'Visualizing Motion and Music' (2017), which is a collaborated work with the London Symphony Orchestra, where dynamic visuals based on the movements of the conductor or music with motion capture technology and visualize Edward Elgar's Enigma Variations (1899). It starts with the arms of the conductor forming a hexagonal shape that propagates like sonic waves in linear space. When the music becomes louder, the linearity gets bent by the motion of the baton, which results in more complex visual arrangements. Textures, colours, materials, and lights are inspired by classical instruments (wood, brass, wind, strings) and the atmosphere and architecture of classic concert halls. In the last sequence, the

conductor's motion turns into strings. The waveform of the sound adds to the form of motion, like mixing audio waves by taking advantage of contrapuntal hand movements as Nattiez points out; Orchestral conductors know that contrasting the styles of hand movements helps the listener/spectator to grasp the structure of a work (Nattiez, 1990, p. 44).

Another important multimedia artist and also scientist Yoichi Ochiai's collaborated work, Transforming Orchestra (2018) with Japan Philarmonic Orchestra and WOW production company visualizes many classical music pieces such as Dvorak's Slavonic Dance No.1, Brahms' Hungarian Dance No.1, Saint-Saens; Symphonic Poem, Bizet's Dance Suite, Farandole, Habanera, Aragonaise, Seguidilla, Gypsy Dance and finally Ravel's Bolero in an absurd way with the help of computer game aesthetics. At this concert, the structure of the orchestra will be transformed by a visual system. This "instrument" will be playing a score newly developed by Yoichi Ochiai. The orchestra transfigures with each musical piece. As a result, the orchestra will be reconstructed to give the music and visuals a synchronized relationship.

Last but not least, a similar project comes from visualization agency Murmur, which participated with other studios such as Chevalvert, 2Roqs, Polygraphik, and Splank. Here The installation simulates the movement of sound waves, building a luminous bridge between physical and virtual worlds. In the following parts of Interactive media, the author will focus on the specific use of the technology along with some emerging multimedia artists.

### 2.3.1 Mechanic versus Orchestra[6]

Visualizing classical music with mechanical or technological images is nothing new, and already this distinction between the machine and social technology can be seen quite clearly in free-lance classical music (Peterson, 1973, p.12), as the organized human groups play the mechanical instruments in the orchestra. When mechanical images are used, technology can abstract a product from human relationships previously necessary for its production. Insofar as musical performances become reconstituted through technology, these social relations disappear as well as the aesthetic definitions associated with them (Frederickson, 1989, p. 194). As a result, while this type of visualization brings a new artistic approach, it also removes or sacrifices some aesthetic norms as well.

[6] https://www.youtube.com/watch?v=n7VPzfm4YTg [Accessed 17 September, 2021], https://www.youtube.com/watch?v=vfgoKRT-gvc [Accessed 17 September, 2021].

Cubist painter Fernand Leger together with American filmmaker Dudley Murphy's Dadaist black and white film *Ballet Mecanique* (1924), can be seen as the first mechanical presentation of avant-garde classical music piece composed by Georges Antheil. This experimental film is an allegory for the mechanization of society through a cubistic montage of images. Simple shapes such as triangles and circles, machinery, and human are visualized with an experimental and mostly overlapping montage, accompanied by Antheil's disturbing and lunatic music. Here Antheil's music is formed of rhythmic piano and percussion beats in minor chords, which is suitable for the film's kaleidoscopic flow without any narration. Sometimes the music is accompanied by a siren sound or natural sounds. Synchronization remains partly in the sense of rhythm only, and it is not the priority of Leger as the movie is a product of the Dadaist movement. A detailed analysis of Leger's movie can be found in Margaret Fisher's Tempo as an Organizing Principle in the 1924 Film Ballet Mecanique: An Analysis and Other Essays on Modernism and Futurism. (2019 tempo as organizing). In his work, Fisher analyzes this work by categorizing it with diagrams as he notes, according to each artist's definition, one constructed solely from fragments, its design based on numerical values rather than narrative or image (Fisher, 2016, p. 18). Last but not least, a more abstract variation of mechanic visualization can be found in Mary Ellen Bute and Theodore Nemeth's collaborated short animated film Synchromy N2 (1935/36), where they depict Richard Wagner's "The Evening Star."

A similar visualization can also be observed in French surrealist filmmaker Germaine Dulac's abstract trilogy *Disque 957, Arabesques* and *Themes and Variations* (1929), where she combines the natural and mechanical images in order to visualize Chopin's music. Last but not least, it is worth mentioning real-time music visualizer Cori O'lan's works. He visualizes only classical music pieces, including Mussorgsky's Picture at an Exhibition and also Beethoven, Mozart, Stravinsky, Bach, John Cage, Bruckner, Phillip Glass's important works with mostly abstract and sometimes figurative elements in the strong sense of rhythm. One particular work, "The Berlioz Project," from the artist's oeuvre draws our attention due to its experimentality. Here, Cori O'lan visualizes Hector Berlioz's Fantastic Symphony with six large screens around the orchestra. When the 3rd movement starts playing, the central element of the special stage setting is a heavy-duty industrial robot KUKA-KR600 which weighs more than 2,5 tons and is 3,3 m high when fully stretched, and this robotic arm is also accompanied by dancers and surrounded by the orchestra. Dancers interact with the robotic arm, they climb on, hold or hug it, and here in the special percussion intermezzo, the robot's six-axis is directly controlled by the music of the orchestra, the same data which are used for the digital real-time visualization.

Another notable mechanic interpretation came from a director, producer, and also the founder and chairman of an experience design agency BRC Imagination Arts Bob Rogers Academy awarded for best live-action short film *Ballet Robotique* (1982), a short movie about the movements of a giant assembly line in a car factory synchronized with some popular classical music pieces recorded by London's Royal Philharmonic Orchestra and the project was sponsored by General Motors (Fig. 12).

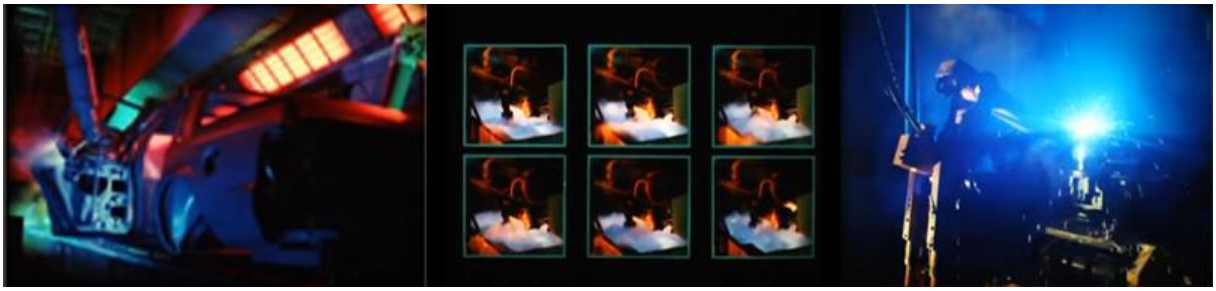


*Figure 11: Scenes from Ballet Robotique (1982).*

Bob Rogers divides his film into four sections, similar to a romantic symphony format. Each section has its own music, but visually speaking, they are not distinctive except for some small details. Moreover, Rogers neither preferred to tell a story nor depicting a car production from the beginning to the end. As a result, we can say that the visual selections are completely based on an artistic approach. As Barthes puts it, To state that a given piece of music *is* a narrative is to imply several things, and not simply that there is some form of story attached. Firstly, there is the suggestion that we have some form of teleology here (Barthes, 1977, p. 32).

The film starts with the orchestra's warming up or tuning sound, and we see the factory management room. Tuning sound ends, and the film's title shows up with a door cracking sound. Main titles are always written in yellow digital font, while the themes of each section are written in blue calligraphic ones, and the font selection supports the main idea of the film. After the main title, the title of the first part *Initialize-Program Load: Etudes,* appears, and it is accompanied by the instrumental part of Carmen's Habanera (1875) by Georges Bizet. The main theme is represented by the movement of a robotic arm in a close shot. The second improved main theme has the same idea but with a different robotic arm movement. Both arms are shot in mostly blue colours with indirect yellow light. With the third improved theme, we see two giant robotic arms washed in bright colours such as orange from a distance. Each beat of the music is randomly

synchronized with the robot's movements. The connection part between the themes and the last passage is mirrored in a robotic arm that upturns a machine part in close-shot. On the other hand, the Habanera seems suitable for the factory machines regarding context because Carmen does not have the feel of grand opera produced by composers such as Verdi or Wagner, and its tunes are dangerously popular and perhaps too accessible to less refined and more bourgeois tastes (Stillwell and Powrie, 2006, p. 48).

The second section, *Binary Synchronization: Pas de Deux*, visualizes Tchaikovsky's Waltz of the Flowers from The Nutcracker (1892), and this section seems the most distinct one due to the use of different elements and divided screen method. Visualization starts with a car assembly line with a dreamy white spotlight in the background, which is suitable for the dreamy introduction of Waltz of the Flowers. Comparing to the previous section, the machinery movement remains more organic with the use of pink and white lighting. As the main theme unfolds, we see the car assembly line again in blue, white, and pink lights. This time robotic arms are spraying dye or steam in car bodies, and this gives us a make-up sense as the music defines dancing flowers. The use of bright colours slightly increases as the vigorous finale approaches. One robotic arm immerses a machine piece into water (a solution). As the finale improves, Rogers divides the screen into two, three, and six, respectively. Each division shows the immersion process, synchronized with the music's rhythm. The robotic arm immerses in the water in close-shot as Waltz of the Flowers ends.

Thirty-second lasting third section *Sub Routine: Divertissement's* main characteristic is using blue sparks that emit from one robotic arm as it welds a car part in orange lighting. The sparking here is synchronized with the Pizzicato from Ballet ‚Sylvia' (1876) by Leo Delibes. Due to its shortness, this section is similar to short and joyful scherzos in symphonies, a preparation, reference, or prelude for the enthusiastic last section where the sparking is a dominant music visualization element. Rogers names this finale as *Dynamic Array: Delibes*, and it is a rough visualization attempt for the finale passage of Tchaikovsky's 1812 Overture (1880), where he used real canons instead of kettledrum or tymbals. Sparks are coming from robotic arms that are welding the car parts to each other, synchronized with canon shots in the music. Together with the music, the film ends with some random sparkings similar to fireworks in celebrations, emitting from robotic arms.

Another similar important mechanical visualization of classical music *Audi Sinfonie* (Fig.13) is also sponsored by a car manufacturer German Audi and created by Hamburg based sound visualization orientated German production

agency Bauhouse artists Fabian Grobe and Clemens Wittkowski as an audio and video performance, collaborated with many symphony orchestras around the world, starting from 2007. Their work has been awarded as Best Music Composition and Sound Design in Germany, 2009 by Art Directors Club.

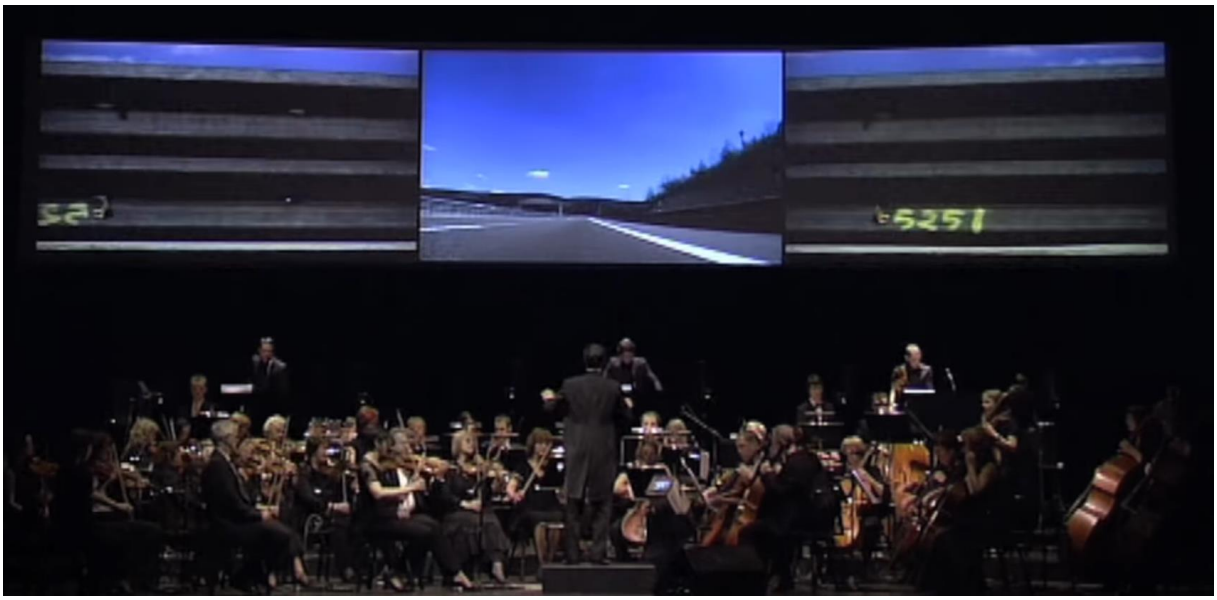


*Figure 12: Scenes from Audi Sinfonie*

The agency is already known for its creative and experimental use of classical music along with sounds in its advertisements, and it is a good example of how even a capitalist company be artistic regarding music visualization based on technology. Apart from promos, they also produce audio-visual performances and sound installations. Their minimalist and hypnotizing video installation with two screens, "Shoot Your Shot" (2012), shows a man wearing a cowboy hat walking towards us on two screens with many creative variations of their desynchronized rhythm. Sometimes a narrator talks about diesel engines, and we see the oil brands flashing out on the screen, and also, a half-naked woman shows up towards the end. This installation can be read as an allegory of man, oil companies, and corruption within the context of sound. Moreover, it is a typical "Semiological Guerilla" and subvertising, as the film criticizes and attacks the traditional advertisement and mainstream mass media culture (Eco, 1973). Another shocking performance, Jaz in the City (2016), is a prank that takes place in Amsterdam's Jaz Hotel. Here while the audience is waiting to listen to Adele, construction workers in the next building slowly build and play dance music to surprise and entertain the crowd.

Grobe and Wittkowski (and their crew) creatively modify the classical music masterpieces in their promos. In the adverts of German railway operator ‚Deutsch Bahn', the melodies of Beethoven's Symphony of Destiny (5th) and "Ode to Joy" from 9th Symphony are mixed with passenger and children's humorous and sympathetic songs in the trains. The Promo for Bosch drills and saws, "Bosch-Opus Green" (2012) uses Beethoven's 7th Symphony's second movement in Allegretto. Here we see a variety of green drills and saws in the green background, moving, working, rattling, and rotating within the harmony of Beethoven's music. Last but not least, in the live performance *"Rhythm Symphonic,"* they mix a variety of absurd footage and rhythmic music with a live symphony orchestra (Cologne Philarmonie), and they end this performance by putting an old mobile phone with the ringing tone of one of Bach's Fugues on the vinyl as an ironic final.

In this context, their longest, most comprehensive, and one of the most artistic works, *Audi Sinfonie,* reflects the many characteristics of their works, as I mentioned above. *Audi Sinfonie* consists of eight parts, and the screen is divided into three sections behind the symphony orchestra. The first part starts as an introduction. Strings give us a sense of warming up while on the screens, we see a car that is being assembled by the robotic arms and machines, and their electronic and mechanic sounds are blended with the orchestra. Towards the end, rhythm and the melody reach a solution and gain momentum, so did the production of an automobile on the screens. In the second part, we start hearing winds in the orchestra for the first time, and here, the music is softer than the introduction. As for the visualization, we see some passing trees as we are looking out of the car window. Three screens serve as one screen, and passing trees are blended with diagram visuals similar to the equalizer effect.

Surprisingly, the third part begins with Johann Strauss' The Blue Danube Waltz (1866). The Blue Danube" is detracted from film music's tradition by its popularity and its cultural sign. Long before it appeared in Kubrick's *2001: A Space Odyssey*, this musical piece already had many meanings (Vienna ballrooms, rich elite, kings and queens, New Year's concert, and so on) (Paulus, 2009, p. 29). As this waltz has been used ironically and sincerely appropriate in Kubrick's 2001: A Space Odyssey, the precision, clarity, and smoothness of 2001's imagery of planets and space vehicles gliding through the jet-black heavens, imagery achieved by legendary efforts in special-effects technology of the time, seem to invite the shimmering waltz to create an elegant ballet through the fusion of sound and image (Stillwell and Powrie, 2006, p. 6). A similar approach can also be seen here.

The main theme of this Waltz, a car's body, immerses in water. However, the Waltz ends in one minute, and the orchestra plays its own music mixed with sound effects. We see the immersing inside the car. Robotic arms spray on the car's body, and this part ends by showing the car assembly line in time-lapse. The same concept continues with the fourth part, but this time, we mostly see the outer parts of the car, such as doors, wind cleaner, and as well as dashboard signs. The sound of these parts and their movements synchronized with the orchestral music. The fifth part is a song with religious tunes about Audi that sang by three children. As the orchestra accompanies the song, we see each child on each screen. The song and the visuals end with glitch and lagging effects. The theme of the sixth part is ‚speed, ' and the camera just moves along the asphalt and strings in low pitch with minor chords accompany the scene. As the speed gain momentum towards the end, both visuals and sounds fade out slowly. The seventh part creates a relationship between a galloping horse and a car engine with the help of strained strings and percussion. The last part is similar to Michel Gondry's Star Guitar (2002); however, instead of shooting from a side view, the camera moves fast in perspective. The theme here is a general journey, and sometimes day turns into night. As for the final scene, the camera enters a tunnel, and when it gets out of the tunnel, the performance ends.

### 2.3.2 Projection versus Orchestra[7]

Opera works can be divided into three different levels: the 'literal,' in the form of Mascagni's work; the 'cultural,' in the use of operatic excerpts as everyday artifacts; and the 'dramatic,' in the adaptation of operatic conventions and techniques (Stillwell and Powrie, 2006, p. xv). Furthermore, the opera film offers elitism to new audiences available as the result of the hybridization of culture [60, p. 48]. An opera-based animation or movie can also inherit these features. Moreover, it can be strengthened or enhanced with technology. Regarding this, Operavox (Fig. 14), directed by a variety of directors to visualize six famous operas: Carmen, The Magic Flute, Rigoletto, Rhinegold, The Barber of Seville, and Turandot with cell animation or stop motion technic. Here the animations are very similar to acting on an opera stage with additional surreal events and a variety of fantastic stages thanks to the wonders of animation.

[7] https://www.symphonic-cinema.com/ [Accessed 17 September, 2021], https://vimeo.com/415463645 [Accessed 17 September, 2021].

*Figure 13: Scenes from Operavox.*

Dutch film director Lucas van Woerkum's concept, "*Symphonic Cinema*" follows the same idea of Operavox, but the difference here is that the films that are edited live to synchronize classical music masterpieces and these films are theatrical dramas or dance performances and they take place in a medieval, contemporary or surreal environment. The first debut of this concept was in 2010, and since then, Woerkum has worked with many orchestras around the world. The main difference here is, in contrast to the modern 'film live in concert' format, the film responds to the music by using a customized software while orchestras are free to perform completely interpret the music as they wish. On the other hand, as Woerkeum transforms the music into movies, apart from its own, the music acquires a visual layer; thus the comprehension course for both media gets prolonged. As a result, the transformation of music into movies actively challenges such assumptions, for here the processes are reversed: listening to music is the "short-term" activity, and watching the film becomes the "slow" process (Inglis, 2012, p. 312)

Their first live performance *Isle of the Dead* (2011), is a visualization attempt to Russian composer and pianist Sergei Rachmaninoff's symphonic poem

namesake *Isle of the Dead* (1908). Similar to Mussorgsky's *Picture at an Exhibition*, here, Rachmaninoff depicts Swiss symbolist painter Arnold Böcklin's (1827) painting Isle of the Dead (Die Toteninsel) (Fig. 15). Böcklin produced many versions of the painting, and all versions depict an isolated island. As Abel and Altman note, The culture within which moving pictures began was obsessed by death and its rituals, an obsession rejected in the vast literature and iconography of Symbolism, stretching from Poe and Baudelaire to Maeterlinck and Yeats, and also embracing such popular figures as Kipling and J. M. Barrie; in painting, it includes Böcklin, Knopff, Whistler, Klimt, and the Russian symbolist painters. (Abel and Altman, 2001, p. 8). We can also mention Canadian animator Norman Mclaren's work A *Little Phantasy on a 19th-century Painting* (1946) (Fig. 16), in which he introduced transformations in his monochrome rendition of Arnold Boklin's painting *Isle of the Dead* (Dobson, 1994, p. 147) with the interpretive musical score by composer Louis Applebaum. In Symphonic Cinema, Woerkum's camera moves through a scary forest. Next, we see the characters: a man, two kids, an old man as a paddler, and their impassive faces with faded skin tone in a boat. As we see the characters, the tension in the music rises. After arriving at the island, the characters walk around the island's forests.

*Figure 14: Arnold Böcklin's (1827) painting Isle of the Dead (Die Toteninsel).*

*Figure 15: Norman Mclaren's work A Little Phantasy on a 19th-century Painting (1946)*

Figure 16*: Scenes from Symphonic Cinema's live performance Isle of the Dead (2011)*

After their choreographic work Motion Games (2013) with composer Thomas Beijer, Woerkum attempted to visualize Stravinsky's Firebird (2015), which is similar to Kandinsky's paintings, as Düchting puts, was increasingly controlled and composed of elements pre-invented and placed in orders more intellectual than instinctive (H. Düchting, 'Kandinsky: A Revolution in Painting' (Germany: Taschen, 1995) Page 340). Here we see the same approach in Woerkum's film as well that provides operatic parallels to ritualism and violence; it is ritualism that cuts across genres and time, situating the film's 'reality both historically and culturally (Stilwell and Powrie, 2006, p. 43). Firebird is a mixture of choreography and drama with surreal events and stages. After the death of his wife, Emperor Kashkei lives in solitude in his memories. In a deserted castle, he's being looked after by his enchanted servants. Kashkei's neglected daughter can't stand this situation and uses her magical powers to confront him with his past *(symp-cinema.com).*

The next work, based on Ravel's famous composition Daphnis & Chloe, Woerkum depicts his music with the same title in 2018. As in the real

mythological story, here, under the influence of her digital self, Chloé loses herself in ostentation and lust that withholds her from experiencing real love *(symp-cinema.com)*. Finally, unlike their previous works, their last work, The Echo of Being (2020), is based on Gustav Mahler's life, and it takes place in a snowy environment with realistic events accompanied by Mahler's music.

Before closing this chapter, it is worth mentioning a unique audiovisual project, "Beethoven Recomposed" (2020) (Fig. 19), commissioned by a German broadcasting company WDR, directed by Annechien Koerselmann and recomposed by Stefan Behrisch, visualizes some essences extracted from Ludwig van Beethoven's 5$^{th}$ symphony for people with and without hearing impairment which is similar to Audio sinfonie and more creative and experimental than Jacopo Castellano's "Carmina Burana" (2018) interactive video projection regarding the installation and visual concept. "Beethoven Recomposed"s visuals are projected on a large vertical and monolithic canvas hanging above the orchestra with the help of software designed by interaction and animation studio Schnellebuntebilder in Berlin. Three LED strips are also hanged on each side of the monolithic canvas to support the visuals. While the canvas depicts the music with an abstract story, led strips to convey and support the music with colour, rhythm, and motion are rendered in low resolution.

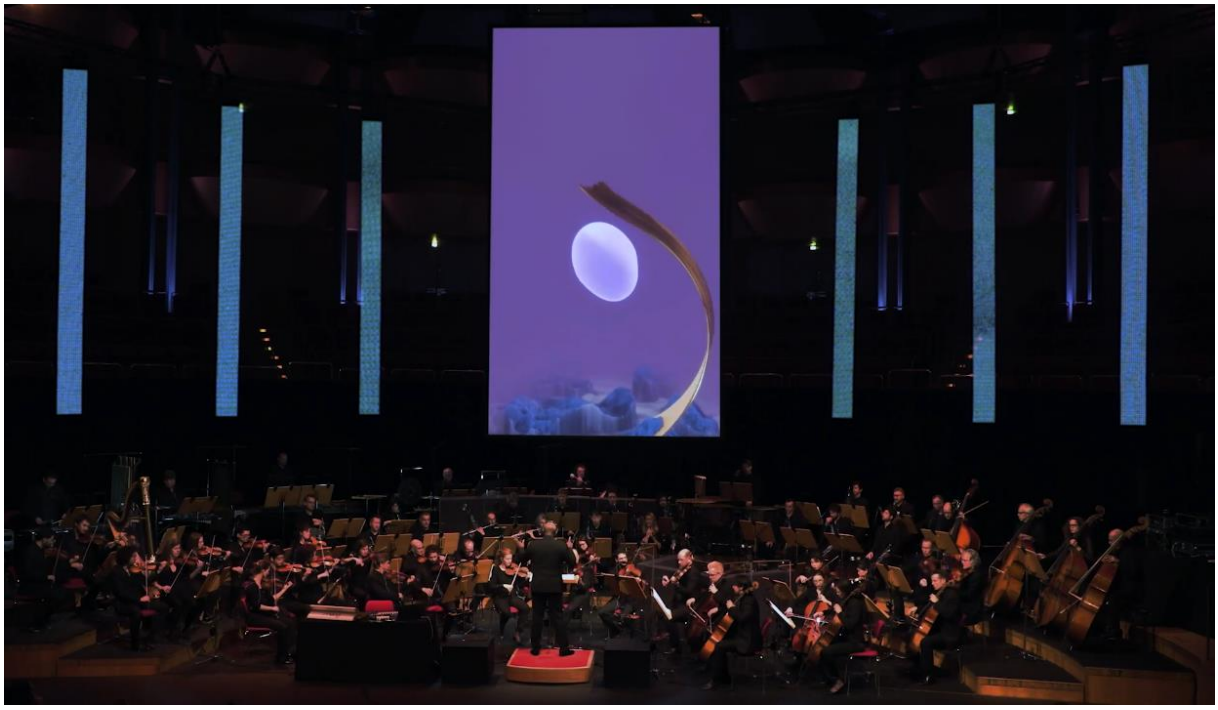


*Figure 17: A scene from Beethoven Recomposed.*

Beethoven Recomposed starts with the introduction of the first movement, Allegro con brio, in Beethoven's 5th Symphony. The famous intro is visualized by fluid dynamics sunk in yellow colour. The yellow colour becomes more apparent with each beat of the introduction. Soon after, the recomposed section starts with the piano. We see some light effects on a distorted surface in 3D, similar to walking through and shooting effects in a video game. Here the shooting and light effects are synchronized with the melody while the camera movement depicts the low pitched chord. In the following modified parts of Beethoven's music, flying fabrics on the distorted surface take over the visualization. Fabrics take different shapes or change speed in accordance with the music. Towards the end, they interact with the light columns emitted by the bumpy surface and flying spherical shapes. Energetic coda is represented by a waving golden colour and fluid-like fabric that fills the whole monolithic canvas.

The second part's focus is on hair simulation. Here a bunch of hairs takes form and shape, change colour, and moves with the music. As the fanfare horns or passionate passages in music arrive, hairs form a twister shape and rise up or act like a jellyfish. As the music evolves, we start seeing many twisters that are made of hairs. They take the form of chaotic shapes while the background colour changes along with the music.

The last part's characteristic is the floating rectangles on the same distorted surface. Here the music is wrathful as the camera goes through each rectangle, accompanied by large stripes as they create a sense of approaching a forbidden zone. Just before 4', the mood suddenly changes, so do the visuals. Here the floating shapes and meteor-like rocks flow vertically. From time to time, a floating fabric-like piece takes a central position. Beethoven Recomposed ends with a coda, accompanied by some shapes that were used in the previous parts to create a symmetrical final.

### 2.3.3 Jaroslaw Kapuscinski[8]

Jaroslaw Kapuscinski (1964) is a Polish intermedia composer and pianist. His primary interest is the creation and performance of works in which musical instruments are used to control multimedia content, and he mostly visualizes his music as he plays the piano. Currently, he is an Associate Professor of Composition at Stanford University. Kapuscinski is not only an independent artist but also he collaborated with many artists around the world. Besides, he published many articles regarding his theories, artworks, and style.

[8] http://jaroslawkapuscinski.com/ [Accessed 17 September, 2021].

Kapuscinski attempts to categorize the link between sounds and images as internal and external. Internal correspondences include formal content:
-Temporal (parallels in tempo),
-Textural (matching media),
-Structural (parallels of formal symmetry)
-Qualitative (parallels in size, motion, shape).

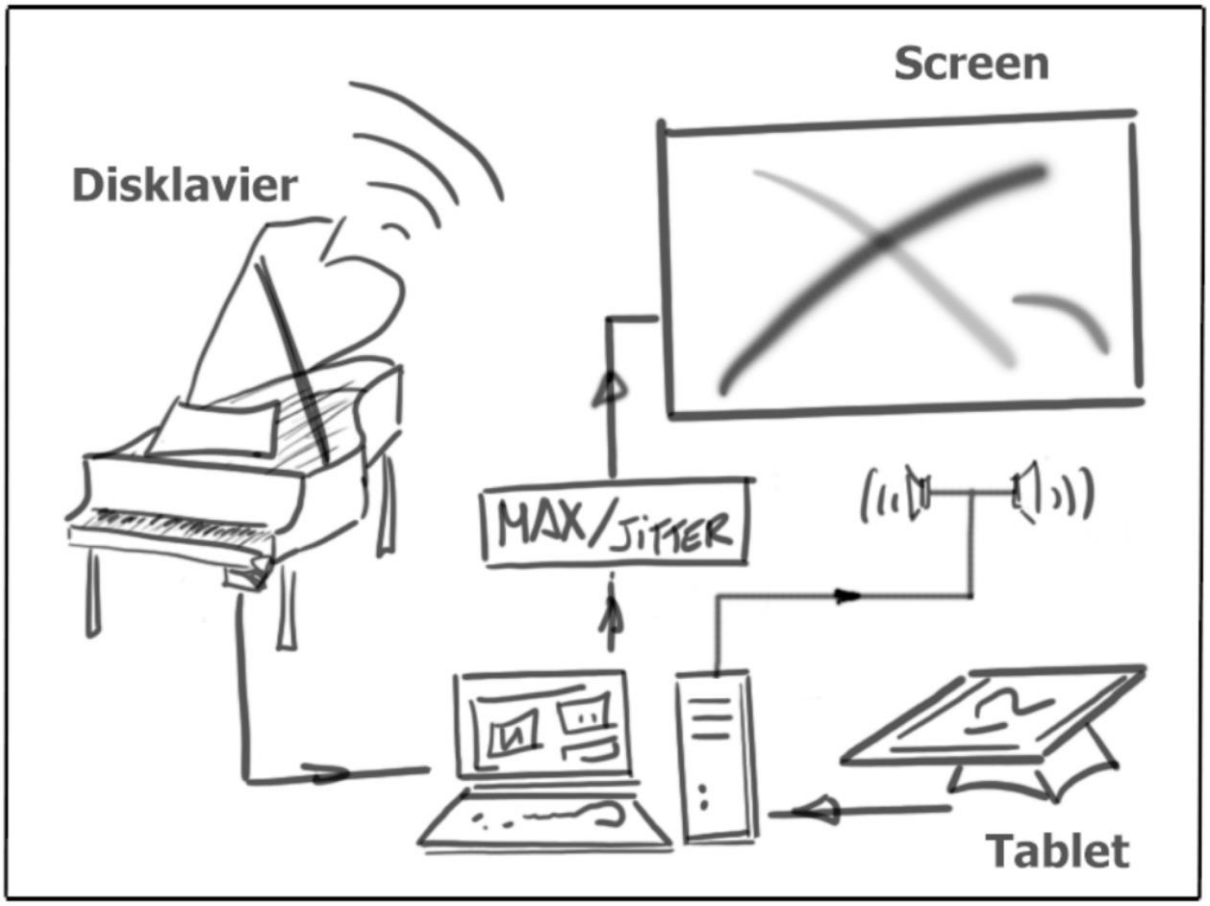
External correspondences are about the objects or emotions such as;

-Physical (animal and its sound),
-Cultural archetype (church and organs),
-Emotional (anger)
-Complicity (a cardboard box falls with the sound of breaking glass, revealing the unseen content of the box).

This correspondence can be created between a single note and single motion, motive and gesture, phrase and sequence of gestures, and as a whole of these elements. Here, accompanying background and foreground objects can be unlinked or linked. As for the counterpoint, the creative use of polyphonic music is necessary. In this case, one element can be static while the other one is in motion, and both can move in parallel or opposite directions. (composing-Kapuscinski). The creative interpretations that are mirrored in this basic theory can be seen in his works.

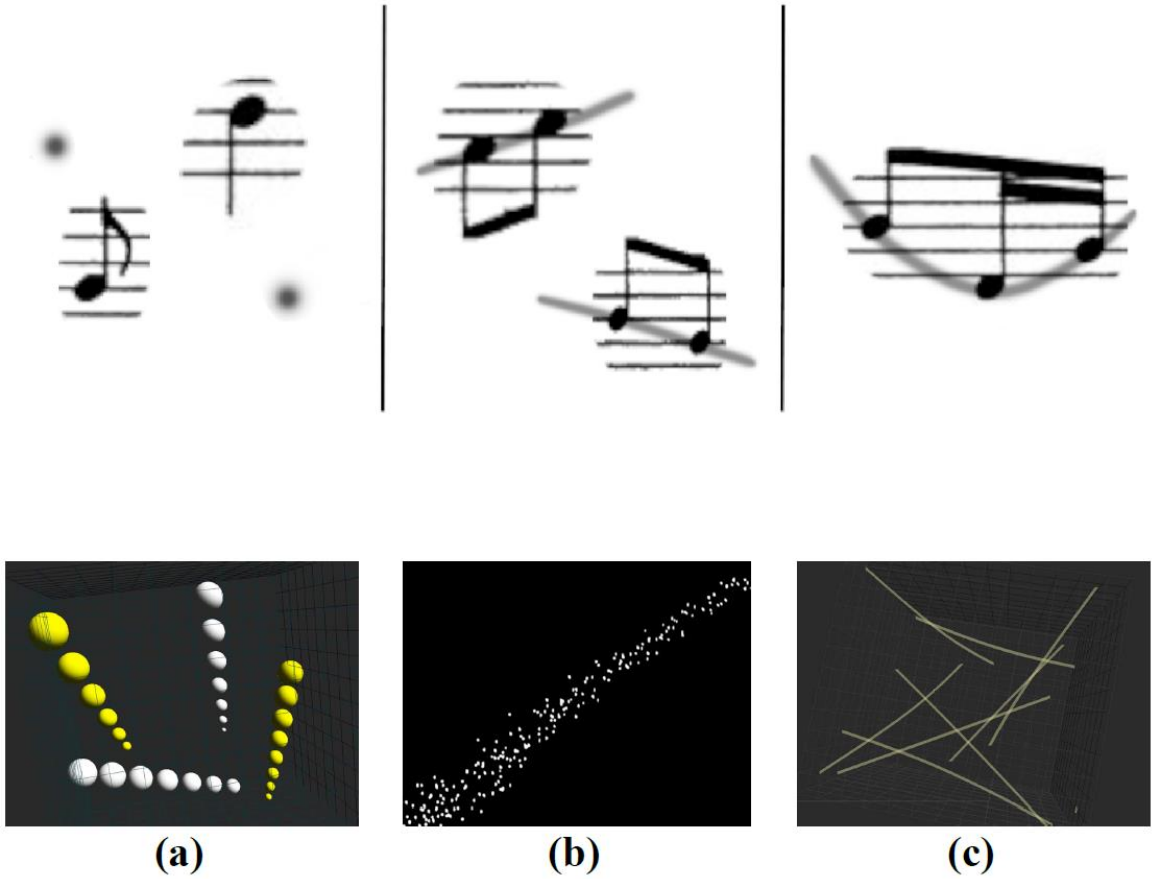
Before moving on to his works, it is also worth mentioning his technical proposal "Counterlines," a duet for Disklavier and Wacom Cintiq for intermedia performances. Here, the pianist generates graphic elements while playing music, and the graphic performer generates piano notes by drawing lines (Table. 21).

Table 22: Jaroslaw Kapuscinski‘s technical proposal “Counterlines.”




Counterlines consist of three elements: Melodic (interval of two notes), Graphic (visual material generated by piano), and Audiovisual (interface of melodic lines and graphic elements). As a result, inconstant notes can be linked with visuals, and later on, the visualization can be improved with the help of computer graphics (Table. 22).

Table 23: Jaroslaw Kapuscinski‘s inconstant notes’ links with computer graphics-based visuals.




Kapuscinski’s first artistic product, media performance for piano and projected body black and white “Yours” (2000), is a collaborated work with German choreographer and dancer Prof. Nik Haffner. Here a naked dancer’s movements on the screen are mirrored in piano music. The music here is mostly dark, disturbing, and skeptical due to the use of minor chords. Seemingly, it is formed of improvised melodies more than a planned or composed structure. Sometimes the synchronization between the dancer and melody has the flavor of glitches, and sometimes the performance stops when he lies down upside down, a female narrator’s voice is heard. She talks about the psychological and philosophical side of the dancer’s position.

His interactive performance for piano and computer projection “Catch the Tiger” (2001) has a similar idea but with mostly happy and major chords. Here each beat of the piano is systematically synchronized with eight-digit white colour numbers on the screen. Eight-digit number evolves with each variation in the music. For instance, with the third variation, as the trills are heard, some digits are

turned into colourful lower cases and change with each beat of the trills. Children's popular counting rhyme "Eeny, meeny, miny, moe" is told by a male child with the children's noise in the background in the fourth variation. Almost all the digits turn into colourful letters. In the last variation, only white digits represent the piano beats, and digits flow from left to right. Seemingly this idea is similar to sonification as it is a technique that uses '*audio to convey information* (Bonebright et al., 1999) about the data being sonified. It can also be compared with Chion's causal listening mode (Chion, 1994), where a sound is auditioned to gather information about its cause (Payling, 2014, p. 27).

Enso (2005) is an abstract image-based collaborative work with Polish Radio Orchestra where Kapuscinski does not play the piano but controls the computer projection. Enso is followed by some minor minimalist works named Koan (2003), and The Point is (2002). In text-based ironic Oli's Dream (2008), the piano acts like a typewriter with a combination of children and engine sounds. The text is superimposed on the pianist, as they rotate or get distorted with piano music. His important work Juicy (2009), does have the same idea, but here we see fruits instead of texts. The chaotic and energetic introduction is visualized by the movement of a variety of fruits in many sizes and colours. The second part is a duet between an orange and lime. These two fruits rotate, get duplicated, and take many three-dimensional forms, synchronized with the music. The calm third part is based on colours with white background. Here the colours are mixed up in the end. The fourth part is visualized by a kiwi. As the music evolves, kiwi rotates or changes. In the fifth part, the screen is divided into many parts, and each part contains a fruit similar to a plum. Plums explode one by one with the accompaniment of music. In the part sixth, fruit juice is poured onto a red fabric from many sides, and the action is run back as the music evolves from low to high pitched.

In 2010, Kapuscinski's other important and famous performance/installation, "*Where is Chopin?"* takes the stage around the world. This installation visualizes Chopin's essences extracted from his Preludes Op.28 by showing peoples' facial expressions on preludes. For that, Kaspuscinski traveled to 12 cities around the world to capture the images of people of different ages, genders, and ethnicities to show the universality of music. In this 31 minutes lasting work, a Disklavier piano, three-channel visual projection, stereo sound, and Max/MSP/Jitter are used to videotape Peoples' reactions, extract their facial expressions as photographic frames, and ultimately present as sequences synchronized with matching moments of music. Up to three different faces are shown on separate portrait-like projections to acquire dynamic contrapuntal relationships.

*Figure 18: A scene from "Where is Chopin?".*

The installation starts with a Disklavier piano playing Preludes Op. 28 by itself. As the music starts, we see many faces on three projectors and hear a crowd noise. Afterward, Kaspuscinski enters the stage and starts playing the piano; we see the details of facial expressions. The facial expression part and music end around 6'20" and then we see some people walking in cities around the world. Around 7'10" music starts again but this time it is happier than the previous one, and as a result, we see happier facial expressions. As the prelude evolves, it takes the form of a scherzo; in response to this, faces smile with irony. At 13' we see the people walk in different cities. A piece from a prelude that reflects complex emotions play, and as expected, the facial expressions become complex as well. The same structure continues until the end of the installation. In the end, the camera zooms out, and we see the many places around the world at the same time on three projectors as Kaspuscinski leaves the stage, but the piano keeps playing itself until the music fades out.

Next essential work *Mondrian Variations* is an attempt to visualize Piet Mondrian's variations with sounds and jazz music. This work was already created in 1992 and was reviewed in 2011. Here, the Mondrian shapes, forms, and colours move with the accompaniment of music and sound. Mondrian asserts —painting is expressed plastically by *plane within the plane*. By reducing three-dimensional

corporeality to a single plane, *it expresses* a *pure relationship*.44 Richter also uses this idea of the plane within a plane in *Rhythmus 21* (Mollaghan, 2011, p. 78).

In 2014, with the collaboration of dancer Young-Doo Jung, Anton Webern's Concerto for Nine Instruments, Op. 24 was visualized with the choreography in a performance named Pointing Twice. Seemingly, as Haga notes, this performance is based on the way they imagined the musical sound was being produced by movements, i.e., that their performance of sound-accompanying gestures is linked to imagery of sound-producing gestures (Haga, 2008, p. 8).

Finally, Side Effects (2017) is another work for piano and video projectors. Here each piano passage is mirrored in bird's eye shots. Interactive Performance for Piano and Computer Projection ,Calligraphies for ZIQI (2018) visualizes the piano music with calligraphist Shanshan Zhao's artistic brush strokes.

# 4. PRACTICAL FRAMEWORK

## 4.1 Games, Music, and Movies

This section comprises not only the introduction of the practical framework but also forms the bridge between the theoretical framework and artistic concept and project "Kinomodule."

Using video game aesthetics in movies regarding music visualization is not a new approach. Videogames are representational artifacts in the way that many other forms of art are, and though different from traditional artworks in certain respects, they do have perceptual and formal structures that are the object of an aesthetic and interpretive engagement in much the same way as other artworks (Tavinor, 2009, p. 174). However, surely, The hypertextual construction and dependence on player activity make each playing of game a unique experience. This also makes it hard to create music that fits as exactly as a film score flows with and accentuates the image (Rieske, 2012, p. 63). From the chasing scenes in *Monk and the Fish* to boxing in *Preston,* racing elements in *Audi Sinfonie*, to puzzle-game elements in *Sleeping Betty*, the directors always use the gaming features intentionally or unintentionally. This usage has been sharply increased as video games are more and more integrated into our lives, and without a doubt, the film industry is the most affected art form due to the similarities and differences with the gaming industry. Indeed, games are very different from other forms of cultural media, and in many ways, the use of older forms of cultural theories is inappropriate for games (Collins, 2013, p. 5). For instance, while it is hard to apply

Chion or Eisenstein's film theories to analyze interactive media works, this would be even harder for computer games. It is because, as Cutajar puts it, a film's structure is normally linear and contains "one beginning, one middle, one end," while a game is nonlinear and may contain multiple endings or alternate paths for players to explore (Cutajar, 2020, p. 19). Moreover, when most designers think of adding music to a game, they usually think of the mood they want to create and the atmosphere of the game (Schell, 2015, p. 32). On the other hand, the pre-existing music use in the games may have similar problems with films as Collins notes, it is possible that such use of well-known songs or styles may be a deterrent to some players, and indeed may be a distraction for any player, distancing them from the attempted immersive aspects of the game [Collins p. 118]. Likewise, audio helps to overcome the two-dimensionality of the image and helps the player feel immersed in a three-dimensional space. As a result, It can not only provide an audio complement to action on the screen but also help create a sense of a real physical space. Research also demonstrated that using sound feedback in games can make them indeed more playable (Zhang and Fu, 2015, p. 4). To give an illustration, In *Dune II* (Westwood/Virgin, 1992), set in Frank Herbert's *Dune* universe, music communicates information and changes in the game state to the player, even if the player is not viewing the object concerned (Summers, 2011, p. 11). In summary, music can provide a sense of immersion, complement the game narrative, or provide the emotional subtext to a scene. In addition, game music can help inform players about their progress, as well as inform gameplay [Cutajar, 2020, p. 21].

*"Musikalisches Würfelspiel,"* also known as *"musical dice game,"* was one of the blossomings of a number of musical games for any kind of people in Europe in the latter half of the eighteenth century. This game also contributes to Zbikowski's theories as he explains "without the least knowledge of Music" to compose minuets, marches, waltzes, , and contredanses simply by tossing dice or spinning a top. As if by magic, a series of throws or spins produced a workable piece of music that was different every time the game was played (Zbikowski, 2002, p. 140). Apart from that, based on the idea of synaesthesia, after the first designs of the "Clavecin Oculaire" by the eighteenth-century French Jesuit Castel, the nineteenth century showed a large number of attempts to develop a device that could produce music and colour simultaneously on the basis of tone-colour correspondence schemes. Inventors like Jameson, Kastner, Bainbridge Bishop and Rimington sought such devices (Campen 2). Rimington patented the name "colour-organ" in 1893 and had considerable success in concert halls with his colour- musical performances of compositions of Wagner, Chopin, Bach, and Dvorak (Peacock, 1988). Thus, Castel's organ can be

seen as the first arcade-like video game due to its playfulness and matching feature between the colours and sounds.

Synaesthesia played a huge role in the development of computer games, thanks to Castel and Rimington, along with Kandinsky and Scriabin's artistic contributions. As the first table tennis-like video game, "Pong" (1972) introduces the "beep "sound, Space Invaders (1978) used it in a functional way; Rhythmical bass-based soundtrack is based on the speed of the aliens as they approach the spaceship. In the 1980s, this type of synchronization was improved by many popular games such as Asteroids, Rally-X, and Pac-man. Finally, in the late 1990s, music games started to appear. In the groundbreaking music game PaRappa the Rapper (1996) by Playstation, the player had to repeat a sequence of sounds regarding correctness and timing. In Vib-Ribbon (1999), PlayStation's next Sidescroller-rhythm video game, the player has to traverse with the bunny "Vibri" by visualizing the beat of any music player puts into his PlayStation. This development paved the way for DJ simulation games such as Beatmania, Dance Dance Revolution, and Dance E-Jay in the late 1990s. Right after the millennium, Harmonix's Guitar Hero (2005) guitar simulation game became popular amongst the youngsters. Here is an underrated sidescrolling strategy game Patapon (2004) by Playstation; players keep the tam-tam rhythm to lead the army to defeat the enemy. After 2010, we can observe the fusion of more abstract and geometric elements with the music. The successor of 'Rez' (2001), "Child of Eden" (2011) by Q Development, is a rewarded experimental synesthesia game. This game is freeform music that does not aim at scoring points. In 2014, Disney's Fantasia made a comeback with "Music Evolved." This game is similar to "Child of Eden" the biggest difference here is that the players are able to score points based on the synchronization with music. Finally, in 2018, designed as synesthesia of animation and music, Resonair and Monstars released "Tetris Effect" for Windows and Play Station. The difference with the regular Tetris here is that the gameplay is tied to the beat of the music with additional musical themes such as African or space and gaming elements. These types of games do not have to be operated on a rectangular screen, as in Sega's Maimai (2012), which is an arcade rhythm game in which the player interacts with objects on a touchscreen and executes dance-like movements. Because the game runs on a white circular screen, it earned the nickname of a washing machine in Japan and became a popular distraction for youngsters.

There is another type of gaming genre called "Music albums with apps" that gives listeners and gamers a unique experience. There is no doubt that, from mechanical automatons of the 9th century to Mozart's dice games, to the aleatoric explorations of the 20th century, at a basic level, composers have been using pattern iteration to generate music for centuries (Halls and Williams, 2017, p. 51).

In the last decade, Many famous musicians released their albums integrated with music-based games similar to automaton ideas, such as Bluebrain by The National Mall (2011), Reworked by Philip Glass (2012), Artpop (2013) by Ladygaga or *Polyfauna* (2014) by Radiohead. Unfortunately, most of the applications failed to satisfy the audience. Amongst tens of similar applications and many hopeful works went unnoticed; nevertheless, one particular work draws our attention due to its creativity; Icelandic singer Björk's *Biophilia* (2011-2013) is widely regarded as groundbreaking and can be seen as the start of a departure from apps purely designed to enable users to create their own music (the pro-sumer phenomenon), towards users consuming music produced by their idols in a new way (Halls and Williams, 2017, p. 58); as a result, it is hailed as one of the first of its kind (Dias, 2014). Biophilia consists of a series of mini-apps, each for one song and all connected to one dominant app. The main theme is "creation of the earth - cosmos' and surely all the mini-apps are loyal to this main idea. For instance, in the "Thunderbolt" app, it is possible to create electric sparks by tapping on the screen to compose arpeggios with the accompaniment of Björk or independently.

In the light of these developments, the cooperation between music, games, and video increases, so do the video artists and animators who use game elements in their video clips each day rapidly, as the technology paves the way for new possibilities. Despite its repetitiveness, French-Swiss artist Guillaume Reymond's Game Over project (2010) can be a good start regarding game-music and video fusion. Reymond uses real human beings sitting in a movie theater as game elements. With this technic, he visualized popular games such as Tetris, Space Invaders, and Pac-man.

As Reymond's project takes place indoors, many video artists use architectural elements in their artworks. Surely, Of all the skills gaming can transmit, spatial skills are the most relevant for architects, as they build on the kind of knowledge that allows them to imagine and design spaces (Gerber, 2019, p. 19). Starting from *Fröbel Gifts*, developed by German pedagogue Friedrich Fröbel (1782-1862), They had a widespread influence in kindergartens in Europe, United States, as well as the architectures like Le Corbusier (1887-1965) and Frank Lloyd Wright (1867-1959). Today, Google Maps, drones, and similar technological elements help artists to create videos more easily regarding using architectural elements in music visualization. A suitable example would be Chun Fai Monk and Hoi Hung Wong's awarded, "I am Twisq" (2018), where they discover the architectural rhythm of Hong Kong by using drone shots with game elements based on shapes, forms, and colours. It can be said that the sound-based version of this work may be Conner Griffith's "Ripple" (2015), a creative combination of sound and drone shots based on sounds from daily life. A similar example, "Visual Music" (2008), a graduation project by Amon Tobin, is about a man trapped in a dream; floors of

the building around him are extruded based on music's rhythm just as an equalizer. Israel-based animator Michal Levy's works, follow the same formation. Specifically, her first animation, Giant Steps (2001), which can be seen as a part of her synesthesia, is a visualization attempt of one of John Coltrane's saxophone solos. Here, as the music evolves in Coltrane's solo, a colourful building rises based on the music's rhythm in a similar way to synesthesia-based games.

Another type of architectural image-based music visualization is "fractal simulation." Fractal can be explained as a geometrical shape in which every part has the same statistical character as the whole. If the fractal shape is created in three-dimensional space, it can offer multi-dimensional architectural elements, similar to Maurits Cornelis Escher's puzzle-like graphics, covered with rich textures or patterns. The visually satisfying texture of fractals can be a suitable synchronization element for music or classical music in particular, and many artists attempted to take advantage of the improvisation nature of the fractal simulation. As Hofstadter attempts to explain the connection between music and Escherian geometry, the idea of a canon is that one single theme is played against itself. This is done by having "copies" of the theme played by the various participating voices (Hofstadter, 1979, p. 16). Here, Artur Stammet's "Bach Improvisation" (2019) tries to illustrate Bach-style organ-based music with science-fictional elements. Seemingly, the fugue is preferable to canons for the visual artists, and the reason can be explained as a fugue is like a canon, in that it is usually based on one theme which gets played in different voices and different keys, and occasionally at different speeds or upside down or backward. However, the notion of fugue is much less rigid than that of a canon, and consequently, it allows for more emotional and artistic expression [p. 17].

Another celebrated fractal artist Truman Brown employs the same idea, deploying classical music in his fractal animations; however, it seems the music here serves as a background element only. If we are looking for more synchronization, it can be found in another fractal artist Julius Horsthuis' works. His "See Sharp" (2018) is a fractal visualization attempt for Chopin's "Nocturne in C Minor" (1830), and visual elements here slightly serves the music, unlike his other works such as "Fractalicious 6" (2017), where the rhythm of the music is mirrored in fractal-based architectural elements with the touch of synesthesia towards the end. In conjunction with these developments in fractal simulation technologies and software such as Mandelbulb 3D, as well as the artistic side of fractals, the first serious open coded fractal game named "Marble Marcher" was released in 2019. In this game, the player controls a ball rolling on the fractal surface, and the aim here is to get to the finish zone represented by a red flag in a

fashion similar to a golf game. While the idea seems promising, unfortunately, there is no contribution to music or synesthesia elements in the game yet.

Last but not least, video mapping adds another dimension to the game, music, and film triangle. The aim of video mapping is to create a physical illusion of images by combining audiovisual elements. These kinds of shows are performed alive, as well as prerecorded also called 'realtime' or 'realtime video' (Ekim, 2011, p. 2). Here the projection surface is usually an exterior or interior side/facade of a large building; thus, the architectural art of the building plays its role in the mapping process and reshapes the projected visuals. Surely, the surface also brings some limitations to the projected visuals as well as the story. For instance, in the Norwegian production agency Doublethink AS' projection mapping with Stavanger Symphony Orchestra (2015), visuals are mapped the huge pipe organ behind the orchestra pit as they play Star Wars Imperial March. Despite the success of this creative concept, the pipes in the middle obviously distort or block the visuals here. Using game elements in video mapping can be observed in English production agency DriveProductionLtd's annual party (2012) for Battersea Power Station in London. Comparing to Doublethink AS's work, the large body of the power station, divided into three sections with two colossal smokestacks, allows animators to perform with great flexibility. Thus, gaming elements like Rubik cube, gamepad, labyrinth puzzles are creatively blended with music and other animations. Surely, DriveProductionLtd's video mapping is not the only one for Battersea Power Station, and many agencies took advantage of the massiveness of the power station. Another agency named ProjectionAd's Video mapping for the popular first-person shooter game *Call of Duty Special Ops* (2019) used some scenes from the game with an indie-pop music background as their special launch event. As for the interior space, Czech production agency The Macula's SIM/NEBULA, 45 minutes of expressively futuristic visual poems, shaping the emergence of the biomechanic organism, accompanied by the Czech Philharmonic Orchestra, uses a combination of projection mapping, visual effects, and motion graphics. On the other hand, video mapping is not limited to buildings. Japan-based director Takafumi Tsuchiya's commercial "Tokyo City Symphony" is about the development project named Roppongi Hills in Tokyo deploys 3D projection mapping on a miniature model of the city of Tokyo at a 1: 1000 scale for providing a brand new visual experience. Moreover, video mapping can be the game itself; Chevy and Pearl Media's world's largest claw game (2011) was projected on the Hollywood Boulevard's famous Roosevelt Hotel, allowing passers-by to play the game with a joystick to win some prizes. A similar idea was applied to a pinball game named "Urban Pinball" created for the Spotlight Festival 2019 on the facade of the Odeon Theatre in Bucharest by Romanian Mindscape Studio. With roots in pinball machines, slot machines, and other arcade machines,

arcade video games are the inheritors of a rich sonic tradition that dates back well into the nineteenth century (Neumeyer, 2014, p. 322), and Urban Pinball creatively convert this heritage to a unique audiovisual experience by using the technology.

## 4.2 An Artistic Concept Regarding Visualization of Music: Kinomodule

1. Overview

Kinomodule is supposed to be a series of short animated films based on classical music visualization. Each section, bar, or sentence in the music is synchronized with a different visual with a common idea, similar to the gameful modular design, and the visuals are formed of retrograded video game graphics. Without claiming a direct connection between video games and Kinomodule, In video games, the modules are often distinct containers of musical data—digital files—and the rules are programmed into the game in the form of triggers and other if-then conditions (Medina-Gray, 2014, p.15). Moreover, sometimes these modules can be replaceable, and one element in the scene or the entire scene is rendered with the same idea in the selected music or vice versa.

Here the nostalgic name "Kino" is associated with the first years of cinema as it means "motion" in Greek and is still in use in Slavic countries, including Russia, instead of "cinema" while "module" indicates the modular structure of animated films. Thus, the name of the concept is "Kinomodule."

Kinomodule rejects the use of advanced technology in computer graphics such as fractal simulation, virtual reality, video mapping, hyper-realistic fluid or particle effects; instead, it focuses on the motion of the mass, geometrical forms, colours, camera movements/angles while keeping the visual effects usage on a minimal level. The animations are supposed to resemble some cutscenes from old computer games, sci-fi, or fantasy animations. The dimension of animated films is 1000 x 667 pixels, not horizontally large enough to resemble today's large HD screens or, in other words, instead it resembles an old television screen to support the retrograded visuals with the support of 1990's VHS glitch effect. As a result, this concept triggers a sense of nostalgia. Johnson-Laird and Oatley (1989) assign nostalgia to the category of complex emotions, which, unlike basic emotions, arise from high-level cognitive processing and possess propositional content (Johnson-Laird and Oatley, 1989, p. 81-123). In their opinion, nostalgia is a happiness-

related emotion, yet, at the same time, it is thought to invoke sadness because of the realization that some desirable aspects of the past are out of reach (Wildschut, 2006, p. 977).

It also rejects music visualization machines based on colours (synaesthesia) and complete synchronization with the music. The visualization should be based on one element or instrument in the music, while the colours and remaining designs should be based on the artist's subconscious and emotions.

2. Concept Design

Kinomodule does have a logo, intro credits, and poster design to embody the concept. Surely, the concept is a second layer, but it is needed to be mentioned.

Here the logo (Fig.21) contains an absurd, retro-looking modified diver's helmet. In an imaginary world, the one who wears this helmet can watch the visuals. I increase the irony by adding "In Stereo" on top. Here and also in the poster and intro credits, I preferred using the font "GrenaiderNF" since its curves and sharp corners evoke nostalgic Art Novueo and Steampunk forms and beige colour with its tones to give the concept an "old and worn" looking, supported by the ornamented frame.


*Figure 19: Kinomodule Logo*

Each animated short film starts with the same intro credits design (Fig. 22); only the names and the picture of composers change according to the film's music (vertically placed on the page for better reading).


*Figure 20: Kinomodule and Seismic Echo Chambers' Intro Credits Design*

On the top, the logo can be seen. "7 Circuits" indicate the seven different scenes are included in the film. Glass Set indicates what the composer's music is being visualized. Finally, the "instructions" sections at the bottom give the audience a sense of using a machine (helmet). The instruction text is blurry and scratched since it does not need to be read, and furthermore, it is supported by a "High Voltage" emblem to increase the irony and clumsiness of the helmet. Overall, scratched and old-looking, the intro design is designed to give the audience a sense of nostalgia.

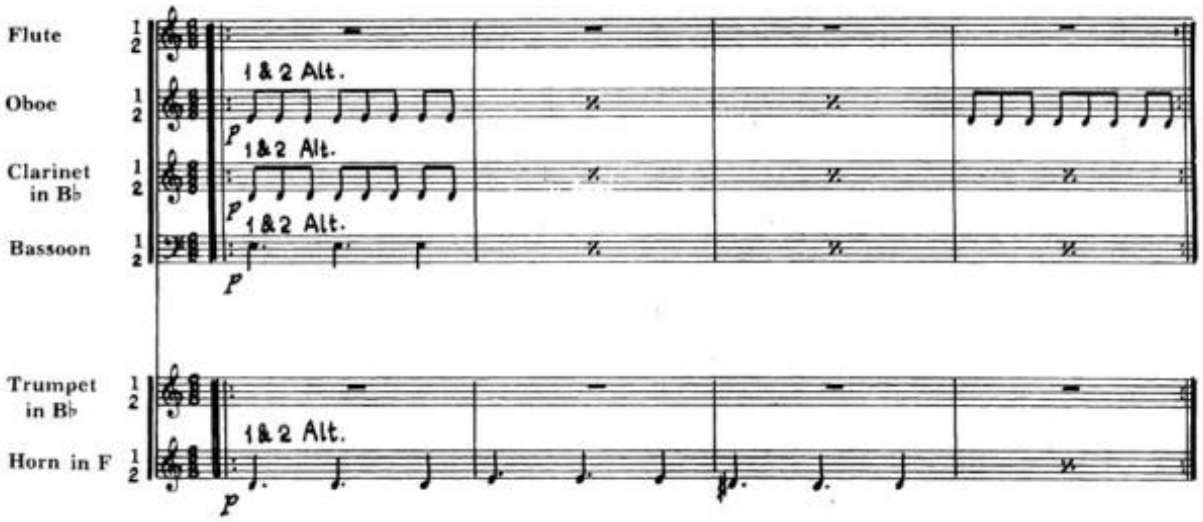
The intro credits last for 10 seconds; there is no animation, but glitch effects with glitch sound to create a contrapuntal effect for an upcoming classical music piece with synchronized visuals.

## 3. Prototype: Seismic Echo Chambers

In the light of the concept and idea, a simple artwork named "Seismic Echo Chambers" has been produced. Here I preferred to visualize minimalist classical music composer Philip Glass's 5th piece of 1986 ballet "In the Upper Room," and the name represents the main element in the film; a rotating blue chamber. Because of this feature of the film, Seismic Echo Chambers can be considered as a visual film which means that it does not feature dramatic action or protagonists, and there is no ‘goal’ in a dramatic sense, and visual events are sequential rather than consequential (Taberham, 2018, p. 169).

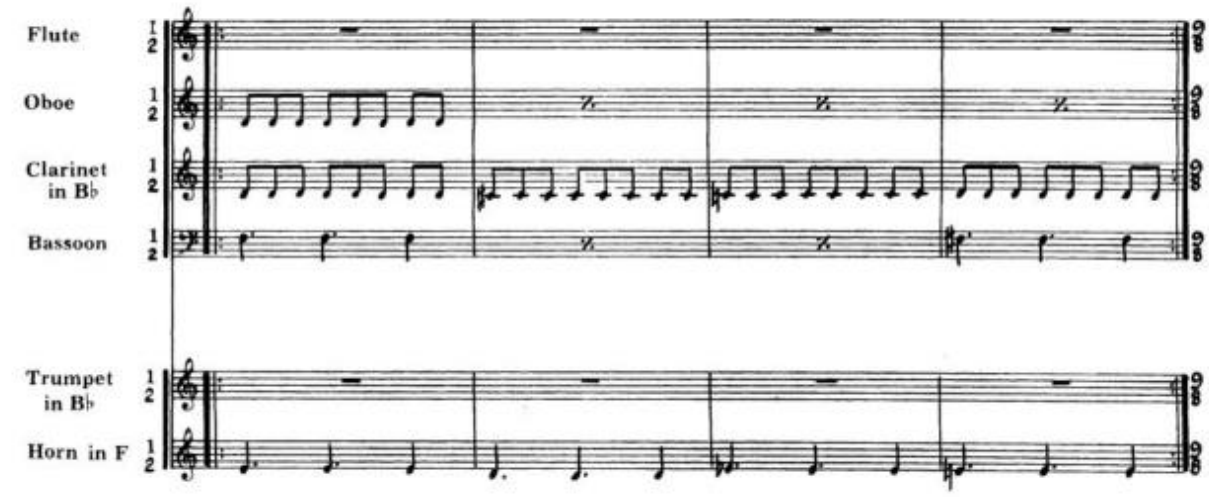
As in this musical piece, Glass's works have been associated with minimalism since his music is based on repetitive phrases and shifting layers. Below, we can see the musical notes (Table. 23) (glass 73 1986), and here the music flows with the same note. Each bar ends with the hit of a triangle, and later on, the tambourine sound accompanies the main idea, which is not drawn on the score.

Table 24: The introduction section of In the Upper Room. No: 5. (Glass, 1986, p. 73)



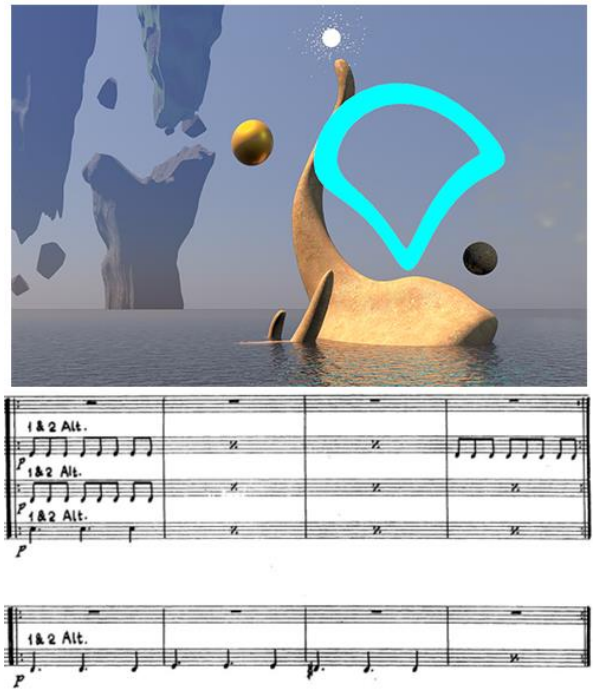

The improvisation of the main minimalist idea is based on only high or low pitches (Table. 24). In this regard, this work is similar to Bach's famous Prelude in C Major. The music continues with a very few changes as below;

Table 25: Second section of In the Upper Room. No: 5. (Glass, 1986, p. 73)




Each image corresponds with the main idea that lasts for seven seconds, as can be seen below.

Table 26: Image synchronization for "Seismic Echo Chambers."




When the first animation starts with a dreamy abstract scene, we see the main idea regarding the leitmotif of the music; a rotating blue, glowing chamber. It rotates within the speed of music (Fig. 23). When the pitch gets low or high, the chamber keeps rotating with a twisting motion to indicate and visualize the change in the music. The same idea occurs whenever the blue chamber is seen. This main idea is accompanied by a floating and stretching golden sphere that represents the Horn line.

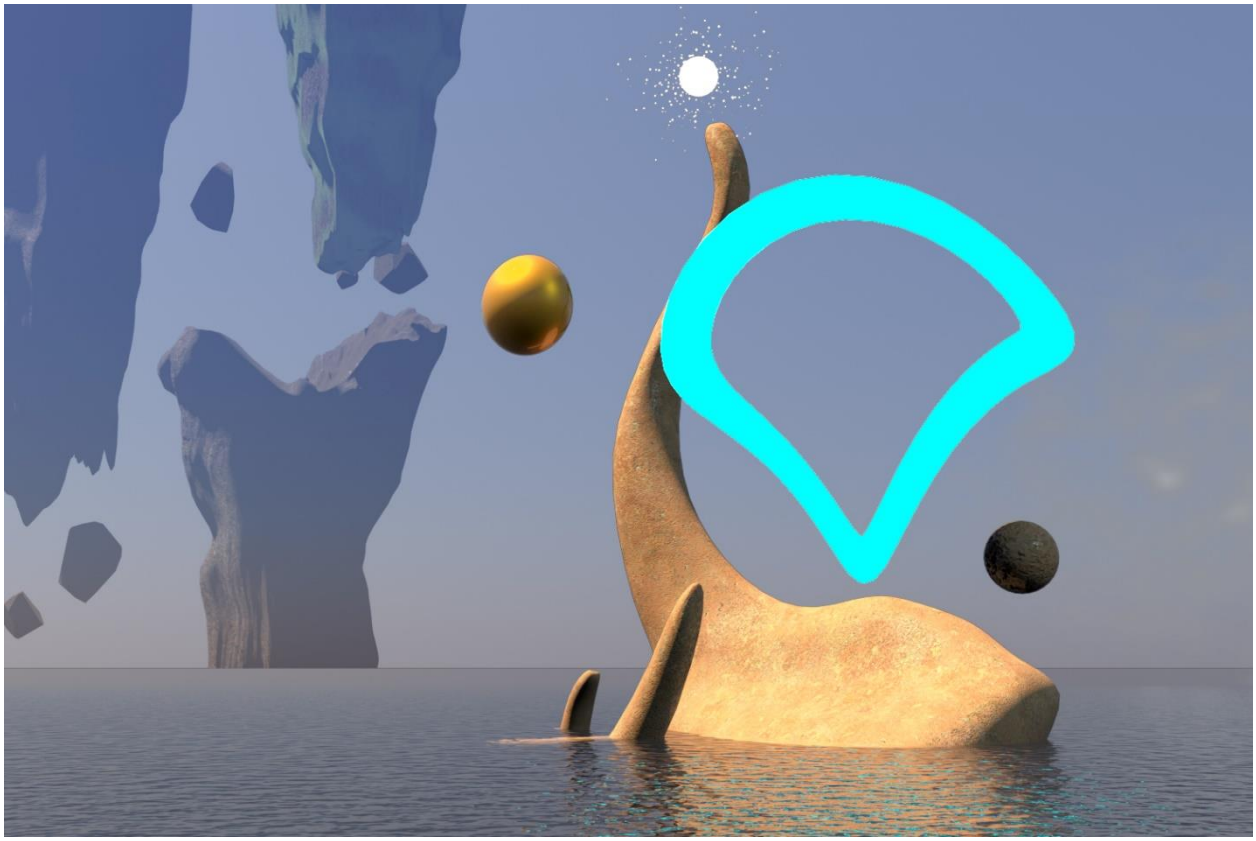


*Figure 21: The first scene of "Seismic Echo Chambers."*

The second scene seemingly completes the deficiency of the first scene, the hit of the triangle at the end of each bar. Diagonal crystals shine in the direction of rotating and a flying diamond. When the shine on crystals reaches the top, the diamond strongly glitters, synchronized with the triangle hit (Fig. 24).

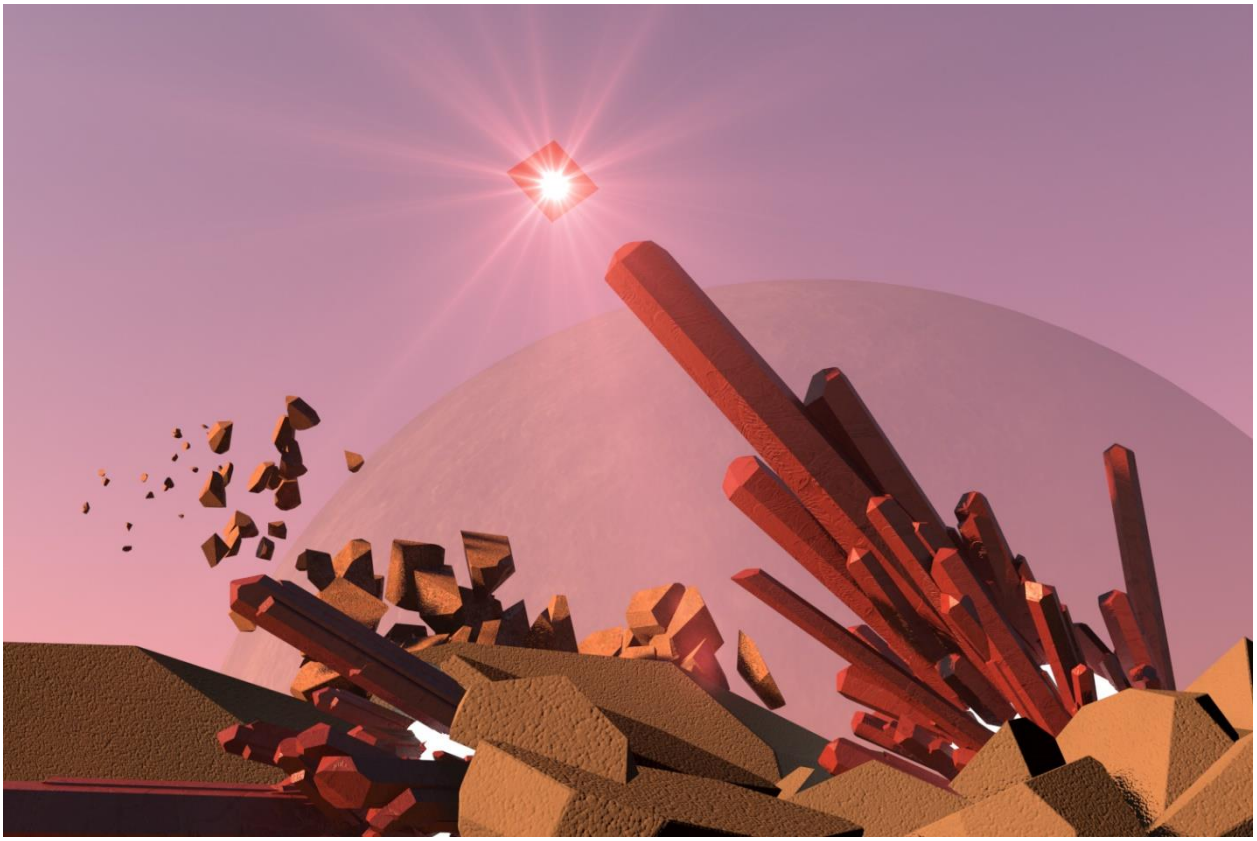


*Figure 22: The second scene of "Seismic Echo Chambers."*

The third scene is set in a giant cave. On the ceiling, the four egg-shaped shells throw glowing blue flowers, rotating a propeller towards the ground. This scene, like the previous one, focuses on percussion (tambourine) visualization. Additionally, the eye blink represents the triangle sound (Fig. 25).

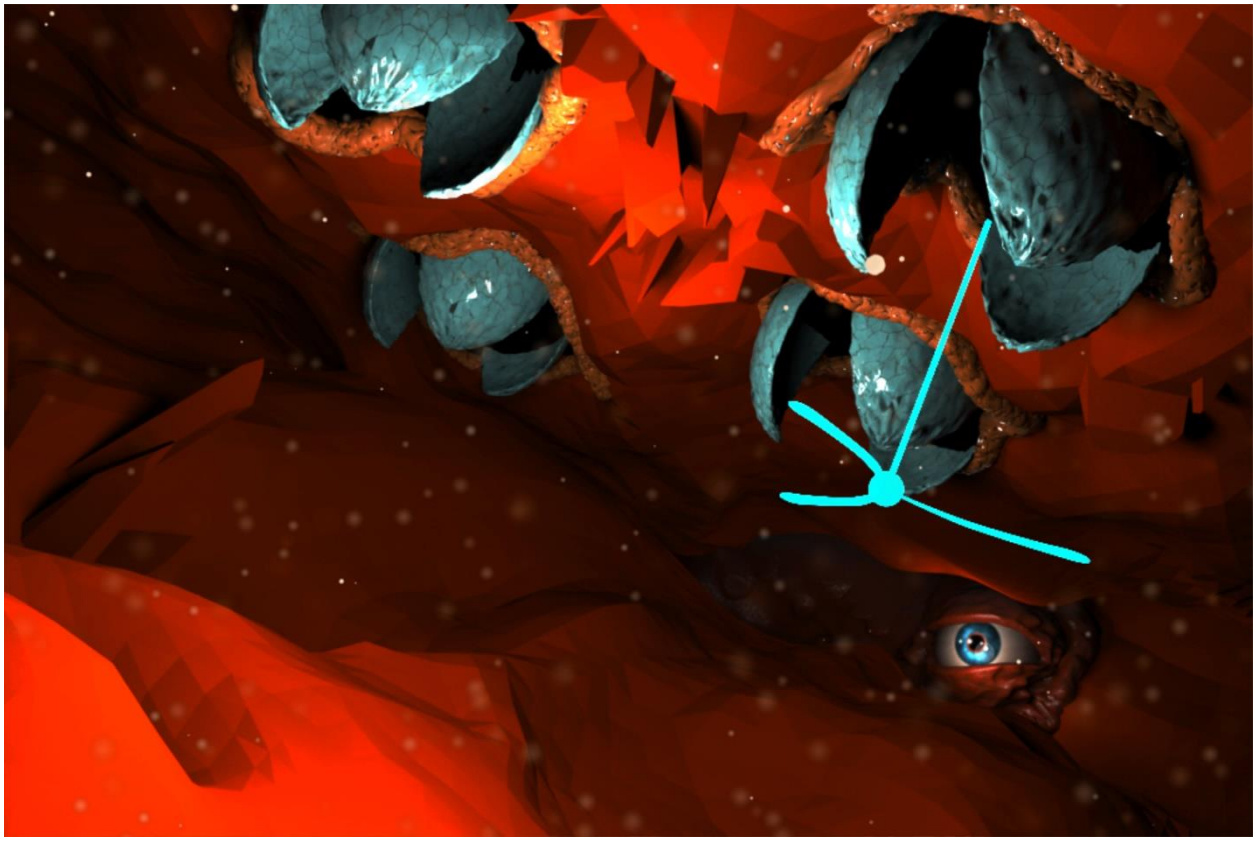


*Figure 23: The third scene of "Seismic Echo Chambers."*

The fourth scene is a reminder of the first one. Here the chamber is back again with the exact same animation; tambourine sound is visualized by flying particles and electric effect with a background of ancient ruins (Fig. 26).

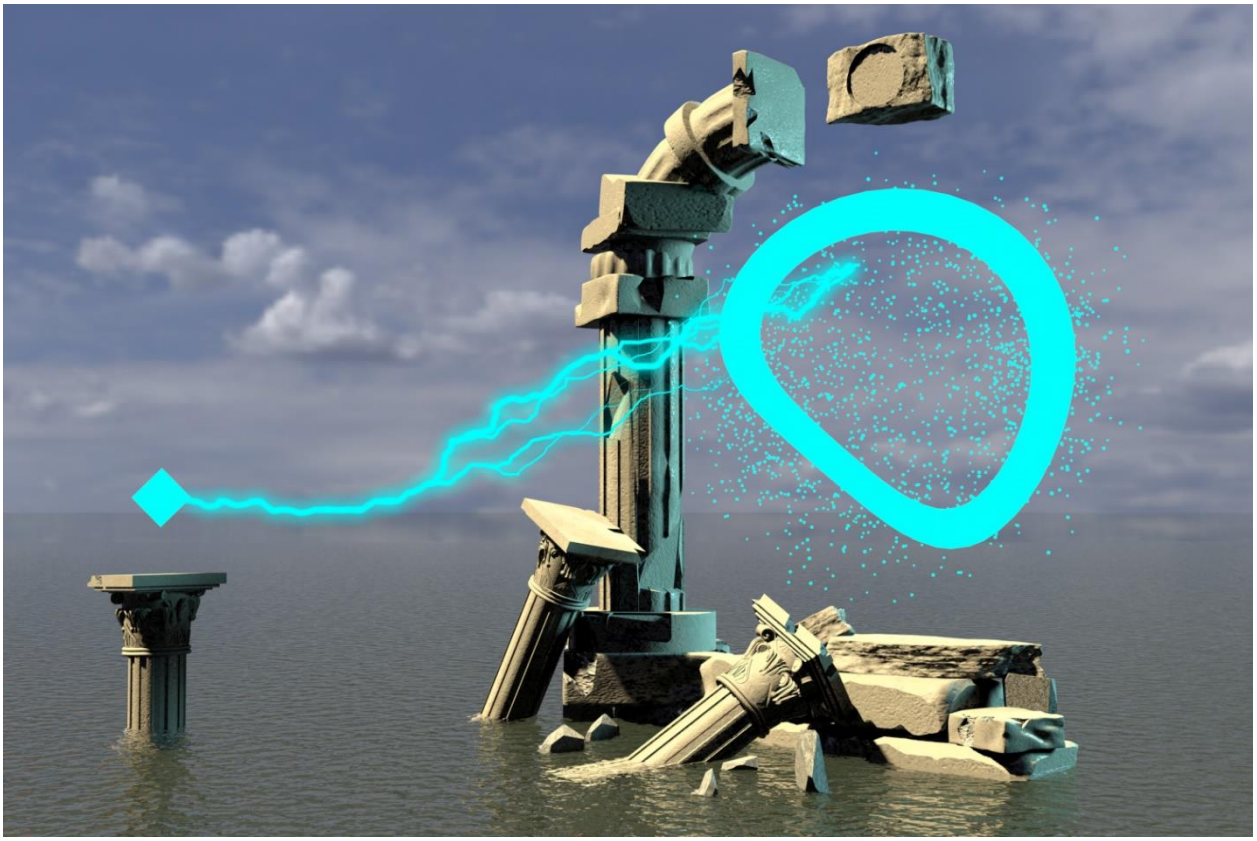


*Figure 24: The fourth scene of "Seismic Echo Chambers."*

As the music enters its second phase, the scene dramatically changes, but ideas remain the same. A colossal space ship is rotating its parts while the blue chamber keeps its movement in the center. Triangle sound is slightly visualized by an electric boom on the tip. The camera zooms out of the blue chamber to show the gigantic size of the spaceship (Fig. 27).

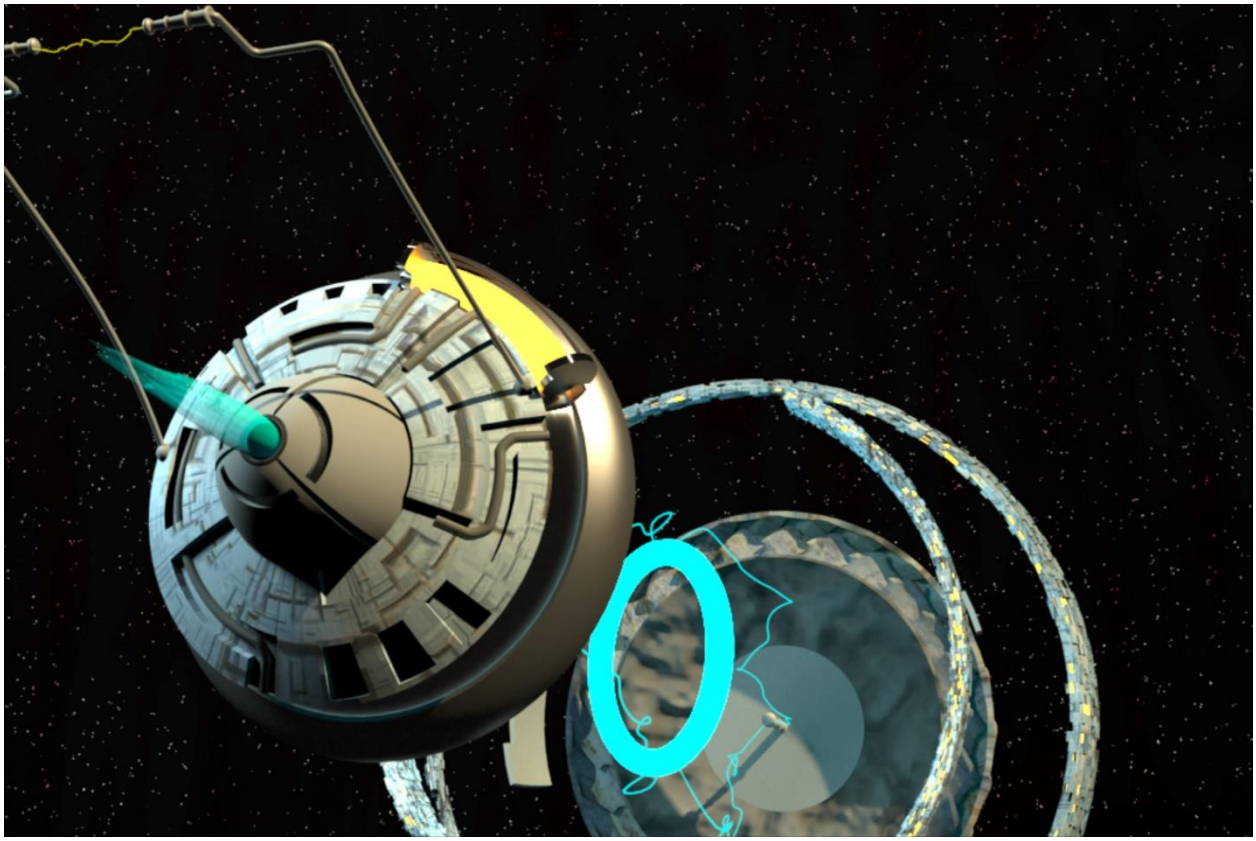


*Figure 25: The fifth scene of "Seismic Echo Chambers."*

The next scene is an allegory to the boss stage in video games. An infested spaceship travels through a giant tube, and it throws blue balls, synchronized with the music while the eye blink represents the triangle sound as in the third scene (Fig. 28).

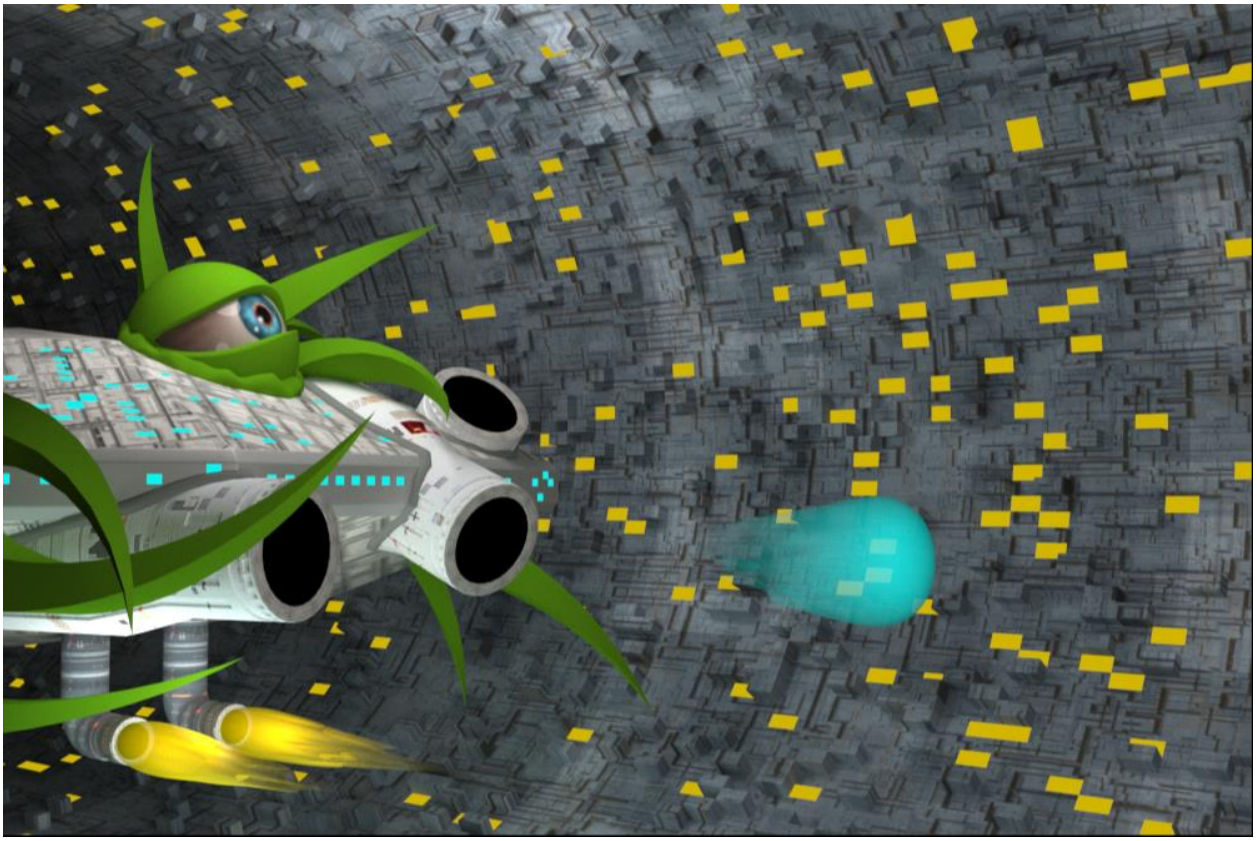


*Figure 26: The sixth scene of "Seismic Echo Chambers."*

The final scene is an allegory for the film. Firstly it occupies two sections, and secondly, it is the most minimalistic one. Here we see a fuselage, camera tilts and turns from bottom to up. As the audience expects to see a different idea, instead, there is a rotating frame, a primitive version of a rotating chamber, a rectangle, in golden colours. A tower-like fuselage in this final scene also resembles the cliché endings scenes in many movies, such as the final lighthouse scene of Alfred Hitchcock's Vertigo (1958) (Fig. 29).

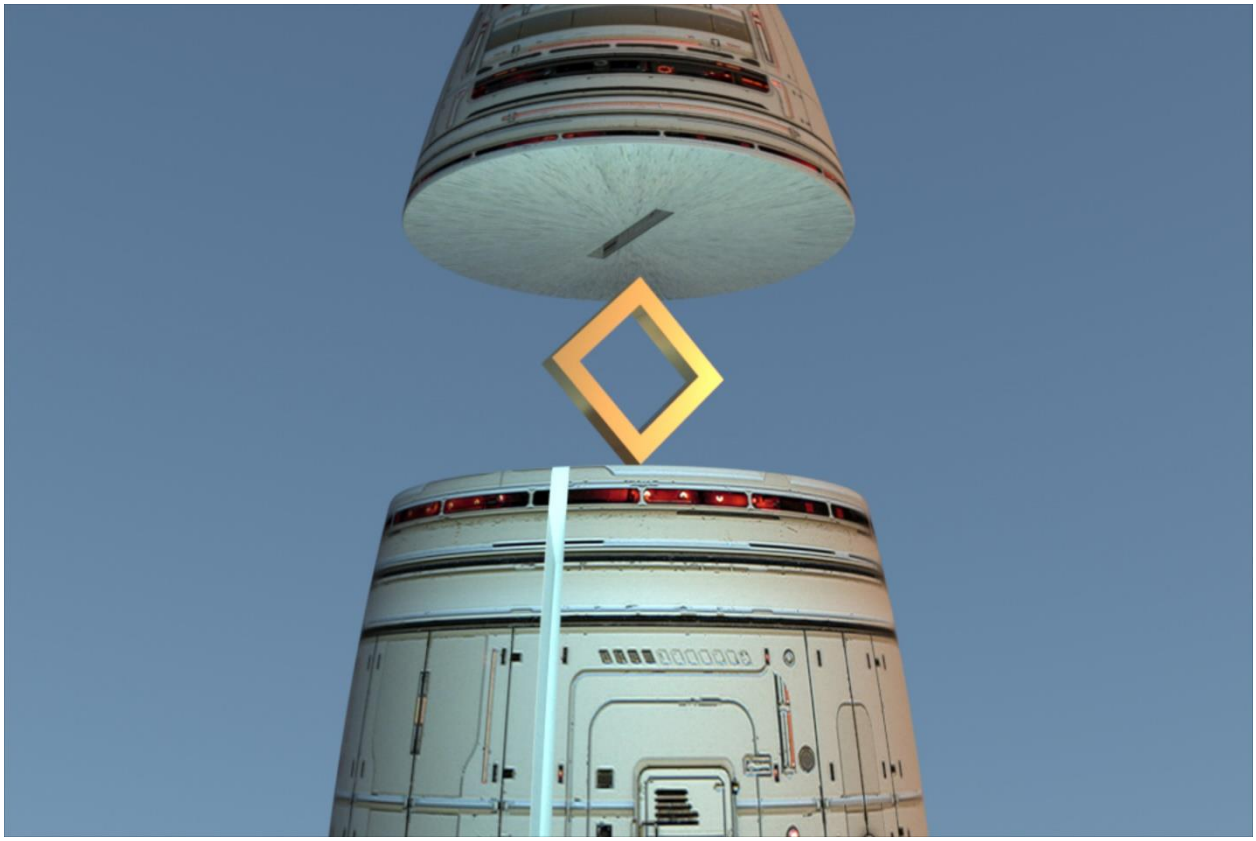


*Figure 27: The seventh scene of "Seismic Echo Chambers."*

"Seismic Echo Chambers" is not completely synchronized with the music, and it seems like there is a story, but the film does not allow the audience to follow a linear story or logical storyline. For instance, while the first scenes are set in the sea, cave, and later on, we see space or spaceships, the last scene is a giant fuselage with a primitive chamber in it as an irony.

The main leitmotif of the music is based on a simple rhythm and played by flute, obua, clarinet, and bassoon. This idea is mostly visualized by a rotating and twisting glowing chamber which is seen in many scenes, in the same way, to give hypnotizing effect as in the music. We do not see it all the time, and it turns into a blue fire and rotating golden frame in the last two scenes. As a result, the leitmotif idea evolves through the film with the music in an absurd way. Last but not least, colour use is based on environmental factors instead of musical harmony.

*Technical Parameters:*

Modeling: 3ds Max

Design and Texturing: Photoshop, Illustrator, 3ds Max

Animation and Simulation: 3ds Max, After Effects (Red Giant, Trapcode)

Rendering: V-ray, Premiere

Created in MSI Gaming Laptop, I7, 32GB, DDR4, NVIDIA GeForce GTX 1050 Ti.

# 5. CONCLUSION

In this doctoral thesis, the author tried to analyze underrated but important films based on classical music visualization and propose a concept and short animated film as a result.

First of all, the author briefly explained the methods he used for my analysis; he takes advantage of Michel Chion's audiovisual analysis method as the main approach. He supported this method with Wassily Kandinsky's colour theories for the colour use in the films. While Lawrence Zbikowski's CIN method provided me a clear leitmotif analysis with schematics, Sergei Eisenstein's graphical analysis method was very suitable for detecting vertical montage ideas.

The author briefly explained the similar thesis and papers to my main idea, and right after that, he provided the definition of some words he used in the thesis. Finally, the author started the main part of the thesis, film analysis, with the aforementioned methods for selected movies. Despite intertwining, he attempted to categorize the analysed films in chronological order, and the author believes these categories capsulate the field as a whole;

"Soviets" as traditional and state-controlled propaganda based media,

"Indie Animations" as Avant-garde and independent media,

"Interactive Media" is the use of advanced technological tools such as projections and video mapping.

After the analysing section, the author proposed a concept named "Kinomodule" with the introduction section of "Video Games" and related short animated film "Seismic Echo Chambers," which is completely based on classical music visualization.

The author reached a conclusion and explained the findings in the "Results" section, and he gave some recommendations based on my experiences and knowledge.

# 6. RESULTS

The results of this research can be divided into five subheads;

*A. Not one but a consistent combination of many methodologies is necessary to analyze movies;*

Surely none of any methodologies may be enough for analysing the music use in the films. While it is easy to adapt traditional methodologies to more conventional films, it is almost impossible to adapt them to movies that have avant-garde or postmodern structures. Because the soundtrack can be distorted in a post-modern interactive media product while in the conventional or modern movies, it can remain the same as Lehman (2012) notes, both Classical and New Hollywood scoring styles are intimately linked with the practices of Late Romanticism, the former via direct influence, the latter in a mix of direct and filtered influence from the former (Lehman, 2012, p. 22).

Apart from that, the methodologies can be too rough, or there are some parts that can be intertwined with each other in a specific methodology. For instance, while it is easy to take full advantage of Chion's, Zbikowski's, Kandinsky's, and Eisenstein's methodologies in Soviet propaganda animation analysis, the conversion is more difficult for Kapuscinski's Avant-garde projections. Not all the selected films offer a clear leitmotif use, graphical music visualization, or synesthesia. As for the methods, Chion's methodology does not offer anything for leitmotif or graphical analysis; thus, Zbikowski and Eisenstein complete Chion's system. Therefore this thesis also puts methodologies to the test to prove their capabilities. As a result, it is necessary to have new theories; this will inevitably happen in time. Surely some methodologies can still enable us to analyze old experimental movies. For instance, as a remarkable article, I recommend Steven Campbell's research on German-Australian experimental movie-maker Paul Winkler's (1939) *Bondi* (1979) and *Sydney Harbour Bridge* (1977) by using Chion's Palimpsest (the idea of sound film as silent film overwritten with sound) and Porosity (the connections between different structural layers of a film) methods. As he concludes; The palimpsestic presentation of sound and silent film, the blurring of the two through porosity, and invitations by Winkler to imagine

both realistic and abstract sounds for the silent visuals he presents, can all contribute to a sense of fragmented sonic landscapes (Campbell, 2011, pp. 29).

*B. Short or feature films, especially animated ones, offer more artistic solutions than the standard films in the framework of music visualization;*

It would be very challenging to visualize the whole symphony, which lasts for approximately 30 minutes at least, and it can be a complete disaster since all the ideas in the music cannot be spiritually internalized by the visual artist. Here, the author would like to mention American director Godfrey Reggio's "Qatsi" film trilogy (1982, 1988, and 2002) that visualizes the music of Philip Glass and each movie lasts for 45, 73, and 76 minutes, respectively. Instead of rendering complete synchronization with the music, Reggio prefers to show poetic images by manipulating the motion and time-lapse of real footage in a non-narrative structure of the relationship between humans, nature, and technology in a similar way to Ron Fricke's Chronos (1985), "Baraka" (1992) and Samsara (2012). As a result, instead of having forced synchronization in the standard-length movies of Fricke and Reggio's, they prefer to visualize the music in a more poetic and artistic way. The advantage of short movies that deal with music visualization is that they can also add more synchronization points due to the short duration of the preferred music. If these short movies are animated, the imagination becomes limitless, and this paves the way for any type of poetic scenes to serve music in the film, such as in Dudok de Wit's "The Monk and The Fish" (1998) as the author analysed in this thesis.

*C. Video games become and should be more integrated with the movies day by day, especially in terms of music visualization;*

As the author already mentioned in the introduction of the practical part of the thesis, visual artists take advantage of video game aesthetics in their films. While gamification of the film can add more dynamism and decrease the dullness of linear narrative, gaming elements such as upgrading, increase in brightness of an object as it takes damage, or endless laser shootings can be turned into visual music elements regarding synchronization. Many films already take the benefits of games intentionally, or unintentionally such as in ISArt's "Presto" (2016) that the author analysed in the thesis when the boxers hit each other, punches are synchronized with Franz Liszt's Rhapsody.

*D. A music visualization should not be a demonstration of the technical capabilities of the artist, but rather it should focus on basic visual art elements such as mass, forms, colours, and motion in 3D with the humble use of visual effects.*

Visual effects are used in many animations on visual music, and they bring many disadvantages along with benefits. A video-mapping demonstration, virtual reality, or optical show can easily be swallowed by the music or vice versa. Moreover, random effects such as fractal simulation or paint disintegration in water can be too random for music's architectural structure. Surely some elements can be left as randomized, but at least the main synchronized element in the visual music should be controlled. A controlled randomized fractal simulation-based music visualization can be observed in Julius Horsthuis's "Fractalicious 6" (2017), where the fractal geometry forms architectural elements to serve rhythm-based music. As here, 3D forms are more suitable for visualizing the music because, as Whitney notes, the perception of music is not two-dimensional. The ears reside at the center of a spherical domain. We hear from all around. We hear music as patterns of ups and downs, to and from in a distinctly three-dimensional architectonic space — a space within (Whitney, 1980, p. 14)

*E. There cannot and should not be any machines or software to visualize each element or instrument in the music.*

In the history of visual music, both artists and scientists tried to design software or machines to match the colours with musical chords or notes. Starting from Isaac Newton's or Alexander Scriabin's musical tones and colour tones proposal, today, there can be found many attempts to embody synesthesia. The musical notes alone can be represented by specific colours; however, in a complex musical structure such as a symphony, it is complicated to assign colours for each note or chord in the film or artwork. For this reason, while the music visualization artwork should give us a sense of synchronization, not all the elements in the music should be represented artificially.

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# LIST OF TABLES AND FIGURES

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***Academic***

2007: Hacettepe University, Turkey: Bachelor of Graphic Design, Faculty of Fine Arts.

2015: Roskilde University, Denmark: Communication Studies, Faculty of Business and Communication (master exchange student).

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2016: Hacettepe University, Turkey: Non-Thesis Master of Computational Animation and Game Design, Institute of Informatics (unfinished).

2016: Stuttgart Media University, Germany: Non-Thesis Master of Computational Animation and Game Design, Visual Effects Department (master exchange student).

2017: University of Tomas Bata, Czech Republic: Ph.D. Fellow in Multimedia, Animation.

Publication:

*"Berlin Wall and Art"* in BELLEK (Başkent University Art Journal): Academic Research about Berlin Wall's era, artistic views of that time, analysis of its political and historical background, criticism of the paintings of Berlin Wall.

Seminar:

Eurasia Graphics 2014 - International Conference on Computer Graphics, Animation and Gaming Technologies, Ankara, Turkey: Workshop about 3ds Max 2015's New Features as an Autodesk Certified Professional.

***Experience in the Field***

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2011: MIMTEK, Turkey: Instructor of Computer Graphics Art.

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2015: Bilişim Educational Center, Turkey: Authorized Microsoft, Adobe, and Autodesk training center.Worked as an Instructor of Computer Graphics Art.

***Certifications:***

Autodesk 3ds Max Certified Professional in 2013, 2014 and 2015
Autodesk Maya Certified Professional in 2015

***Technical Skills:***

*Autodesk Set:*

3ds Max, Maya, Mudbox

*Adobe Set:*

After Effects, Illustrator, Photoshop, Premiere

*Autodesk Plugins:*

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*Traditional:*

Charcoal pencil drawing

# Vizualizace hudby: Srovnání teorií, uměleckých děl a návrh

Visualization of Music: Comparison of Theories, Artworks and a Proposal

This research's primary objective is to seek, find, analyze, and compare the notable or underrated artistic videos on music visualization in the light of relevant and propose an experimental artwork.

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