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Ressentir: A Multi-Layered Visual Filter for Enhancing Cinematic Experience

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Ressentir

A Multi-Layered Visual Filter for Enhancing Cinematic Experience

by

Anirudh Srinivasan

A Thesis Submitted in Partial Fulfillment of the Requirements for the

Degree of Master of Fine Arts in Visual Communication Design

School of Design

College of Art and Design

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Rochester, New York

August 6, 2021

Committee Approval

Ressentir - A Multi-Layered Visual Filter for Enhancing Cinematic Experience

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Mike Strobert, Chief Thesis Advisor Date

Senior Lecturer, School of Design College of Design

Adam Smith, Associate Thesis Advisor Date

Associate Professor, School of Design College of Design

Abstract

Watching any digital content without audio is going to be monotonous, as one vital component of cinema is lost entirely. Removing audio will significantly affect cinematic experience and make movie-watching extremely boring for someone who cannot hear. Audio, in a movie, is comprised of dialogs, music and background sounds. One must realize that removing audio would take away, not just sound but also emotions attached to scenes. At times there might be only background score, which does not necessarily mean that these scenes are unimportant. There are obviously instances where music alone would get across the message. This thesis explores new ways of incorporating simple design principles that can help communicate emotion, context, and sound using just overlaid dynamic visuals. It is to be acknowledged that there is merely nothing more powerful than using a visual language as a tool to communicate a message. The amount of information that can be assimilated through a visual is extraordinary. But it raises ambiguity since visual language can be extremely subjective and open to interpretation. This project also demonstrates the use of existing design techniques to overcome the problem of subjectivity that arises due to an exaggerated visual filter. Introducing a unified visual language and developing a layered visual filter could be a great solution to give the viewer an opportunity to precisely comprehend scenes in a movie without audio. The objective was to create a visual that can serve as an alternative to audio for any recorded content, ranging from movies to real-time videos. This project was originally created for enhancing movie experience, but obviously has a lot of other useful applications as the visual language itself is very versatile.

Keywords

Visualizer, Filter, Emotion, Intensities, Augmented, Parameters

Cinema as an artform has evolved over the years and has had a significant impact on people across the world. It is certainly a creative outcome formed as a result of an effective and meaningful combination of so many different elements coming together in a cohesive manner. Cinema is more than just telling the audience a compelling story. As a viewer you will evidently experience and feel a wide range of emotions watching a movie. The movie makers make sure that the story is told in such a way that it would put the viewers in the shoes of the character. So much of what is presented to a viewing audience is staged. *Staging, also referred to as blocking, is an effective tool for direction which based on motion and positioning of characters in a composition. It is so important that it can mend or destroy an entire scene*.[1] It is obvious that a director would want his viewers to experience movies a certain way so that they would be greatly engrossed and feel experience the intensity of scenes. But is everyone able to enjoy the experience the same way or how it was intended to be shown, was the question that needed to be answered. Imagine how dull and excruciatingly annoying it is going to be, to watch a film without audio. Which is precisely how a person with hearing impairment would feel while trying to watch a movie in theatres. *Deaf moviegoers have expressed their frustration towards many movie theatres not screening films with Open Captions (OC). OC is basically displayed on screen and not on devices like Closed Captions (CC) are. Electronic devices such as headsets and digital displays commonly used by deaf moviegoers in theatres have been said to be in extremely poor conditions.*[2] But whether there is OC or CC doesn't really matter ,since having subtitles, i.e., open, or closed captions, being displayed at the bottom of the screen is neither making movie-watching joyful nor is it honestly doing any justice to the viewers who can not feel the sensation and effect of sound. Going the distance to come up with a workable solution to make cinematic experience better for everyone was much needed. This thesis explains in detail as to how a unified visual system can solve majority of the problems faced by deaf moviegoers and introduce a wider audience to a new way of watching movies.

This thesis project has been named Ressentir, which basically means experience or feel in French. It has been created mainly for the purpose of making movie experience great for people having difficulties with hearing. The objective was to build a dynamically changing super-imposed visual filter that can clearly communicate the most important attributes in any digital content. The filter analyzes both audio and video of the recorded content before it communicates emotion, context, and sound by harnessing dynamically changing shapes, warmth of colors and rhythm of visual pulses. The output generated by the system is purely visual. Removing audio would make cinematic experience horrible not just because of the sound being removed, but because so much of emotional content being lost. Background score in a movie has a significant impact on conveying emotions. It takes care of narration and makes the audience feel through even when there are no dialogs being exchanged between characters. There must be an additional visual component that could compensate for the music and background sounds that are removed. The project shows a new approach wherein articulated visuals layers are utilized extensively for communicating emotion, context and sound. This can be used to literally replace the sensation that audio can produce to a great extent.

The filter has multiple layers stacked upon one another to provide more visual information and assist the viewer to comprehend scenes easily. The system takes input from the original visual with audio and using Artificial Intelligence forms the purely visual output. For creating the topmost layer, the system strips the audio waveforms into its constituent parts, namely dialog, music and background sounds, and visualizes each part of audio. This is relatively simple since it translates the audio into visual without going through any additional stages. The middle layer of the filter is for visually helping the audience understand the emotions of a character. The system recognizes emotion on the subject's face using facial tracking techniques. This works in conjunction with the script and dialogs delivered by the character, since there certainly is equal dependance on screenplay. *Colors evoke certain emotions and can have a psychological impact on the viewers*.[3] Four different colored layers were created, each of them corresponding to an emotion. Red for violence, yellow for love, green for vulgarity and blue for grief. These colors could evoke other emotions, but for the purpose of constructing the foundation of the visual language these four basic colors have been chosen. This is a new and simpler visual language. *Even still imagery has the power to shape a person's thoughts. Films have been said to be significant enough to alter the mood of the viewer*.[4] A moving visual with audio has so much to convey and without audio, there is no assurance that the emotions felt by the viewer are the same. The goal was to develop a layer specifically for communicating emotion. The middle layer is a colored shape with its silhouette wiggling. The velocity and amplitude of wiggling relates to intensity of the scene, and it controlled by Python fields in a 3D software called Cinema 4D by Maxon. Overwhelming scenes would have its exterior of the shape oscillating extremely fast. The bottom most layer of the filter, is the one that provides context for the viewer. For the system to figure out the underlying context it must extensively study all parts of audio, i.e., music, background sound and dialog, camera movements, track background, facial expressions and closely analyze the script. The bottom layer has colored particle simulations and rhythmic pulses determined by many different parameters such as background sound, scene intensity, music, cinematography, and screenplay. The result is created by a combination of factors and it is a challenge for the system to form a visual layer for providing the inner meaning or underlying context.

The system has a heavy dependance on color psychology. This thesis only discusses briefly about a possible solution that could help people understand moving visuals without audio in a much better way. But there definitely is an extensive use of color grading being used. There will be shortcomings since the field of color psychological itself is going through a metamorphosis. *Color psychology is only at the starting phase and has many flaws due to it being based on theoretical and practical evidence, rather than having strong scientific assertions.*[5] The research in this area is just not enough to make specific conclusions and due to this reason, there must be a wide range of approaches.

Developing a universal visual language is by itself a big challenge due to subjectivity and vagueness. It becomes much harder to stick to a specified approach and forces us to create multiple variations of each visual prototype. With the technology that is available today, it is clearly feasible to create this visual system. It is just a question of experimenting with different methods of displaying and visual implementations of the filter.

The filter was originally created to be used only as an overlay for movies. But further research into the topic showed that the system could be used on any recorded content having emotion and context, such as music, real-time videos, GIFs, and audio books apart from movies. There's hope that such a system can be a versatile and valuable addition to the digital world if it works. Since it is a new visual language built solely for the purpose of enhancing cinematic experience, the disadvantages and complications are unknown as of now. Anything to do with colors is subjective and can lead to confusion because every individual has a unique way of perceiving them. The visual language of course follows a set of rules which people would have to adhere to. Maybe once viewers get acquainted with the way the filter works, they will be able to tell whether it is good or not. But for now, the system certainly evokes a strong feeling when videos are played to people with the filter overlaid on top of them. This is for sure a new approach to screen digital content and can revolutionize the digital world in the near future.

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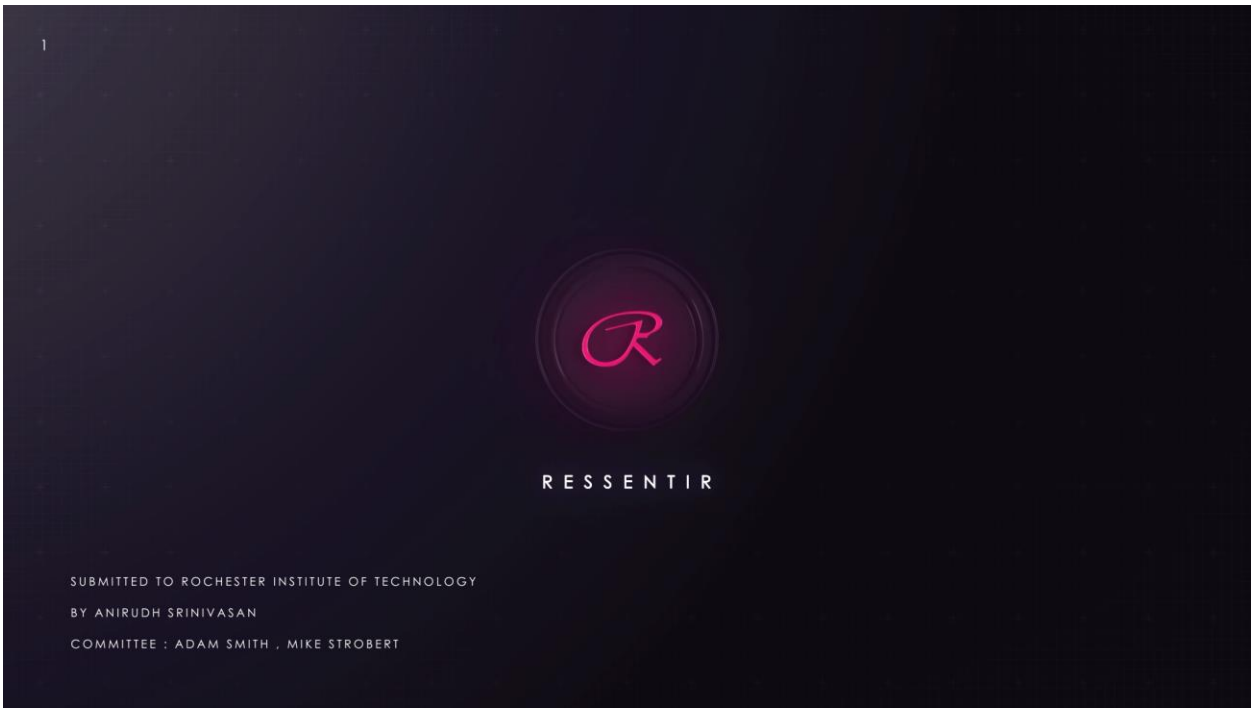
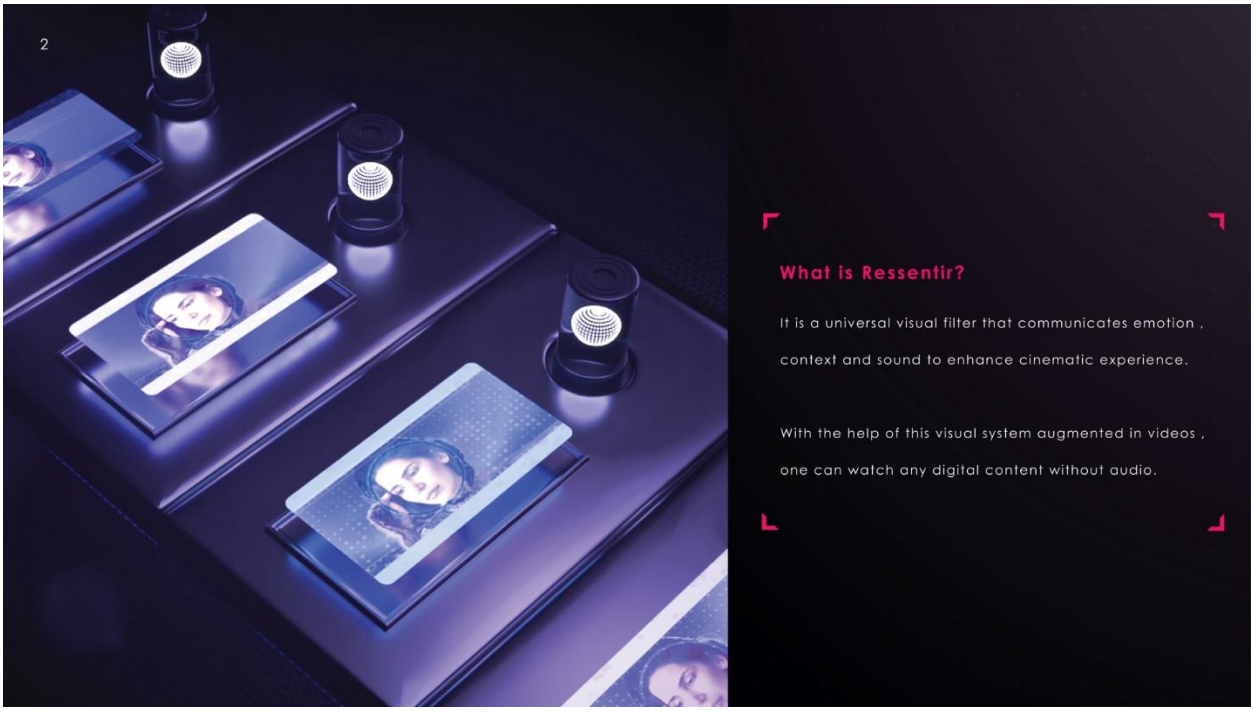
APPENDIX B: Thesis Defense Presentation





A MULTI-LAYERED **VISUAL FILTER** FOR CINEMA

Why do we need it ?

Cinematic experiecne is completely lost without audio. People who can not hear find it exceptionally hard to follow along since there are no visual cues that can serve as an alternative to audio.

What is needed today ?

A system which can smartly improve cinematic experience though the use of superimposed visuals.

How is the problem solved ?

A visualizer that communicates emotion , context and sound by harnessing dynamically changing shapes, warmth of colors and rhythm of visual pulses. A unique language that translates all aspects of audio into video.

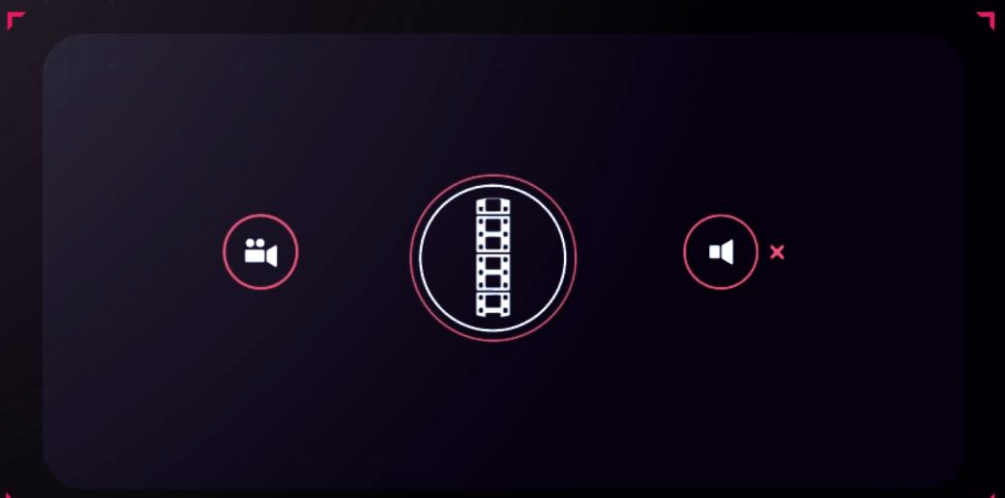
7

TWO **COMPONENETS** OF CINEMA

8

Cinema = Video + Audio

9



10

HOW CAN **AUDIO** BE REPLACED WITH **VISUALS** ?

11

EMOTION

CONTEXT

SOUND

BY CREATING A **LAYER** FOR EACH ATTRIBUTE

12

COLOR

SHAPE

RHYTHM

BY COMBINING THESE **VISUAL PROPERTIES**

13

Determining Intensity

Sharpness or roundness of objects

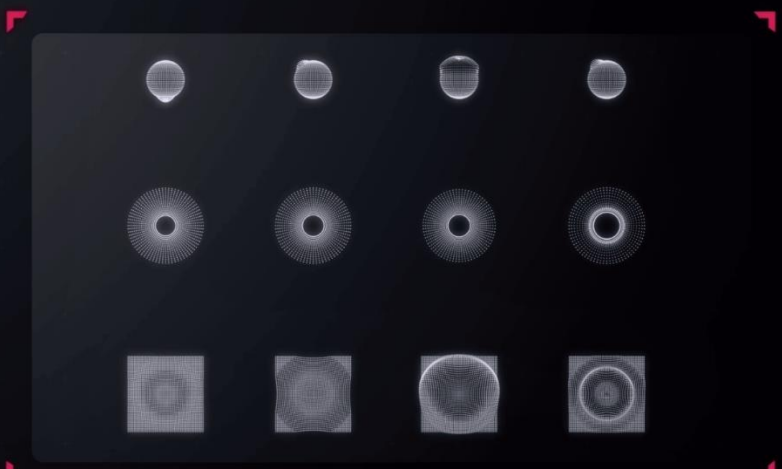
Tempo or rhythm of beat

Hue - Saturation - Brightness

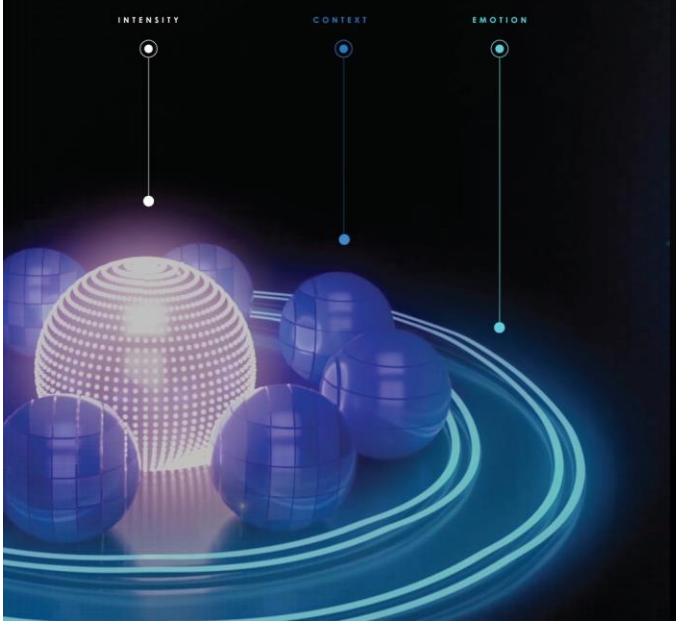
14

PROTOTYPES

15



16



3 Important parameters visualized

The sphere at the center is for “intensity” . Visualizes audio intensity in conjunction with the script.

Second layer , is for emotion and is determined by color

Bottom layer ,is for context and is determined by shape and color

BY ANALYSING BOTH **AUDIO** AND **VIDEO** TO CREATE OUTPUT

INPUT **PROCESSING** **OUTPUT**

Solutions

Having a visual filter incorporated in videos opens up a whole new way of watching movies. This is a daring attempt to create a less intrusive yet extremely powerful and compelling superimposed layers that is seamlessly integrated with the original visual.

Themes

Users can switch between viewing modes based on their personal preferences

Primary Emotions

Blue - Grief Circle - Intensity level I

Blue - Depressing

Cold and depressing moments in films. Stimulating predominant mental agony.

Red - Hexagon

Pyramid - Intensity level II

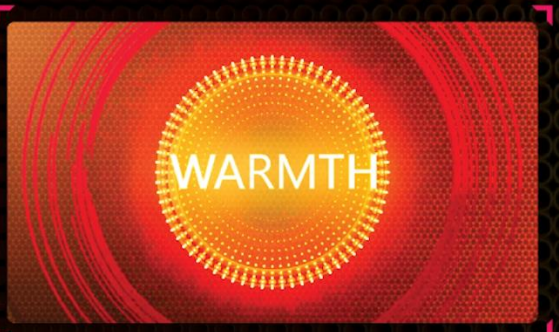
Red - Violence

Used in scenes involving physcial agony or violence . Any sort of visual that mildy or gruesomely depicts physically intense and painful parts in movies

Yellow - Warmth

Square - Intensity level III

25



Yellow - Love

Joyful and happy scenes , which make the audience feel excited and cheerful.

26

Green - Disgust

Pyramid - Intensity level IV

27

Green - Vulgarity

Used in scenes involving vulgarity and extremely disturbing scenes, Insanely disgusting and creepy parts in movies fall into this category.

28

System grammar

After the system analyzes both the audio and video inputs of the recorded content. A superimposed visual composition is created , wherein each layer corresponds to an important constituent of cinema.

Sound , emotion and context

	SOUND		EMOTION	CONTEXT
INPUT	Dialogue	Background	Facial Expression	Cinematography
OUTPUT	Front Circle	Backdrop	Color	Shape
METHOD	(Audio-Waveform)		(Tracking)	(Corner Pinning)
RELATION	Only Audio		Dialog + Expression	Music + Expression + Camera + CC

Digital content breakdown

This breakdown shows how the system strips each aspect of cinema into its simplest forms ,including the script , to create a visual output.

When audio is removed , it also takes away the emotional content and context associated with a scene .This forces the system to visualize all parameters.

31

Secondary or Complex Emotions

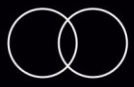
Yellow - Warmth (Emotion) & Blue - Grief (Context)

Circle - Square (Intensity I - III)

32

COMBINED SHAPES

SUPERIMPOSED



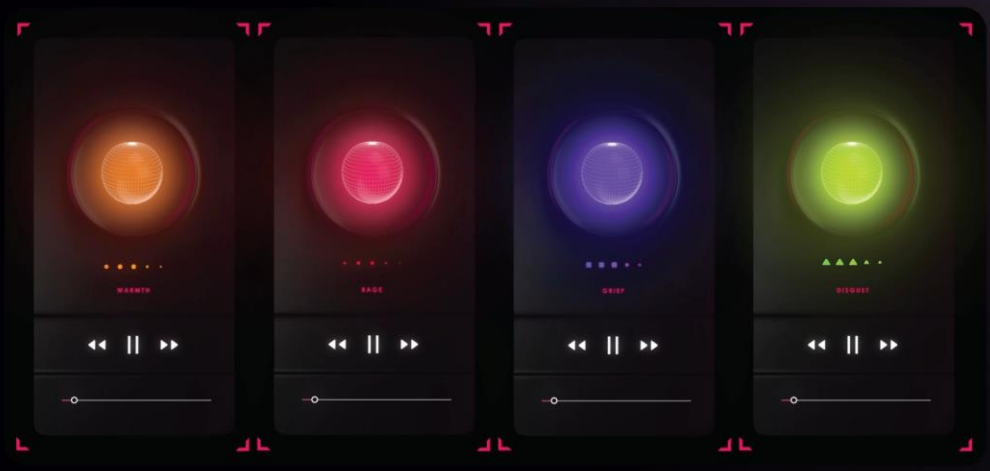
33

34

HOW AND WHERE CAN THE **VISUALIZERS** BE USED ?

Music Players with filters

Audio is the only component that is fed into the system for visualization , unlike a GIF where you have just the visual...



Engaging GIFs

The process of creating a filter includes conversion of just emotion and context based on only one aspect of cinema ,i.e video

Real - Time Recording

Any real-time video would require a spontaneous output based on changing input that hasn't been recorded.
It is still very much possible with the power of AI that the world has at its disposal

Physical Visualizers

The visualizers act as visual stereos amplifying the effect that is shown on the screen. The visualizer harnesses the exact same parameters as the digital system , but is a tactile device that can be installed or carried anywhere based on your convenience.

39

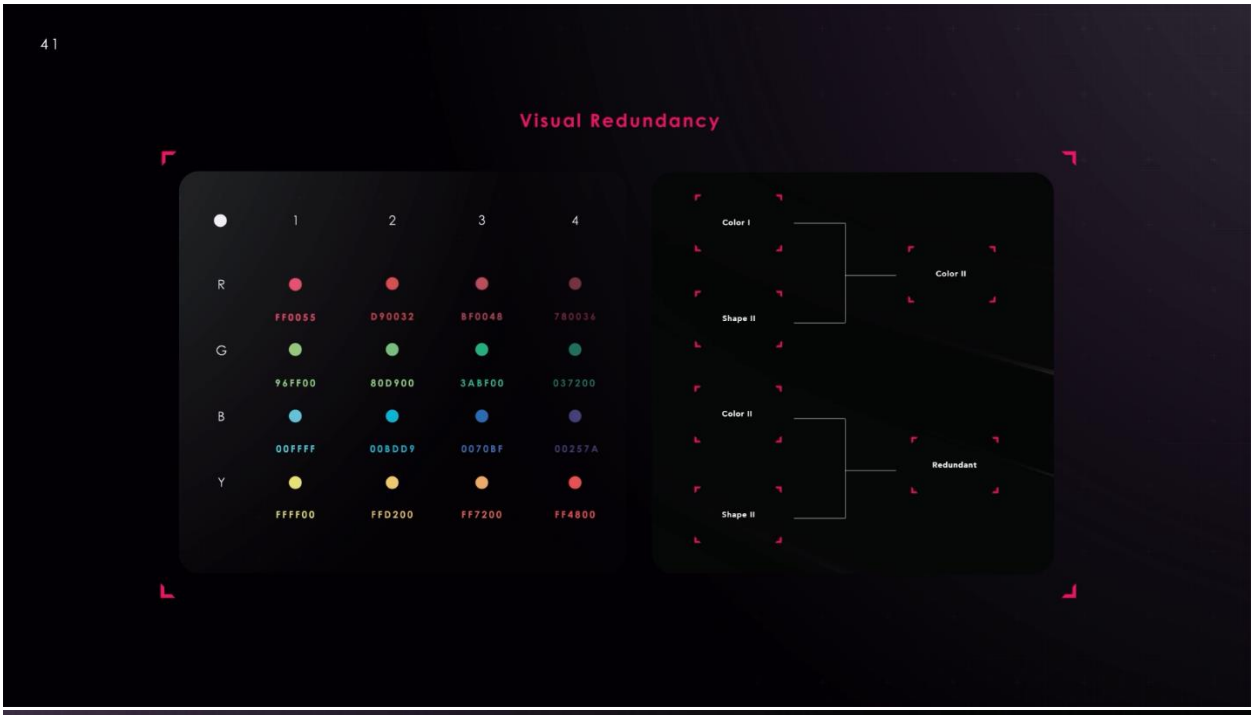
PHYSICAL **3D VISUALIZER**

40

Visual Amplifiers

A visualizer placed in front of an entertainment set. This technique is aimed at creating a better cinematic experience for viewers who watch movies at home

41


Visual Redundancy
1
2
3
4
R
FF0055
D90032
BF0048
780036
G
96FF00
80D900
3ABF00
037200
B
00FFFF
00BDD9
0070BF
00257A
Y
FFFF00
FFD200
FF7200
FF4800
Color I
Shape II
Color II
Color II
Shape II
Redundant

42


R
G
B
Y
IV
III
II
I
0
Time (minutes)
180

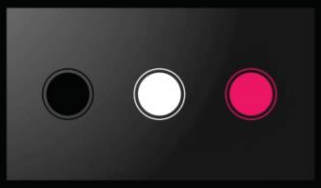
Ressentir certified visual ratings

Numerical values combined with letters , give the viewers more information about the genre of the movies

1
Typography

Avenir	**20 px**	**Website**
Avenir Light	20 px	
Century Gothic Regular	24 px	**Video**
Century Gothic Bold	**24 px**	
Avenir	**32 px**	**Logo**
Vivaldi	*32 px*	

2
Color Palette



Black #000000

White #FFFFFF

Pink #FF0060

3
Identity

47

THANK YOU

48

SOFTWARE

CINEMA 4D
ADOBE ILLUSTRATOR
ADOBE AFTER EFFECTS
ADOBE PHOTOSHOP
PROCREATE
INSYDIUM X-PARTICLES
INSYDIUM CYCLES 4D

ATTRIBUTION

ROYALTY FREE CREATIVE COMMONS VIDEO CLIPPINGS (https://www.pexels.com/)
A Mother And And Son Hugging Each Other - https://www.pexels.com/video/a-mother-and-and-son-hugging-each-other-4769591/
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Published March 26, 2012.
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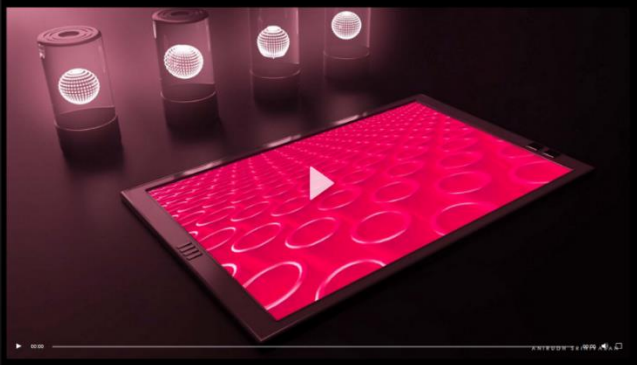
RIT | Visual Communication Design

RESSENTIR

Designed by ANIRUDH SRINIVASAN



Ressentir is a universal visual filter that communicates emotion , context and sound to enhance cinematic experience.

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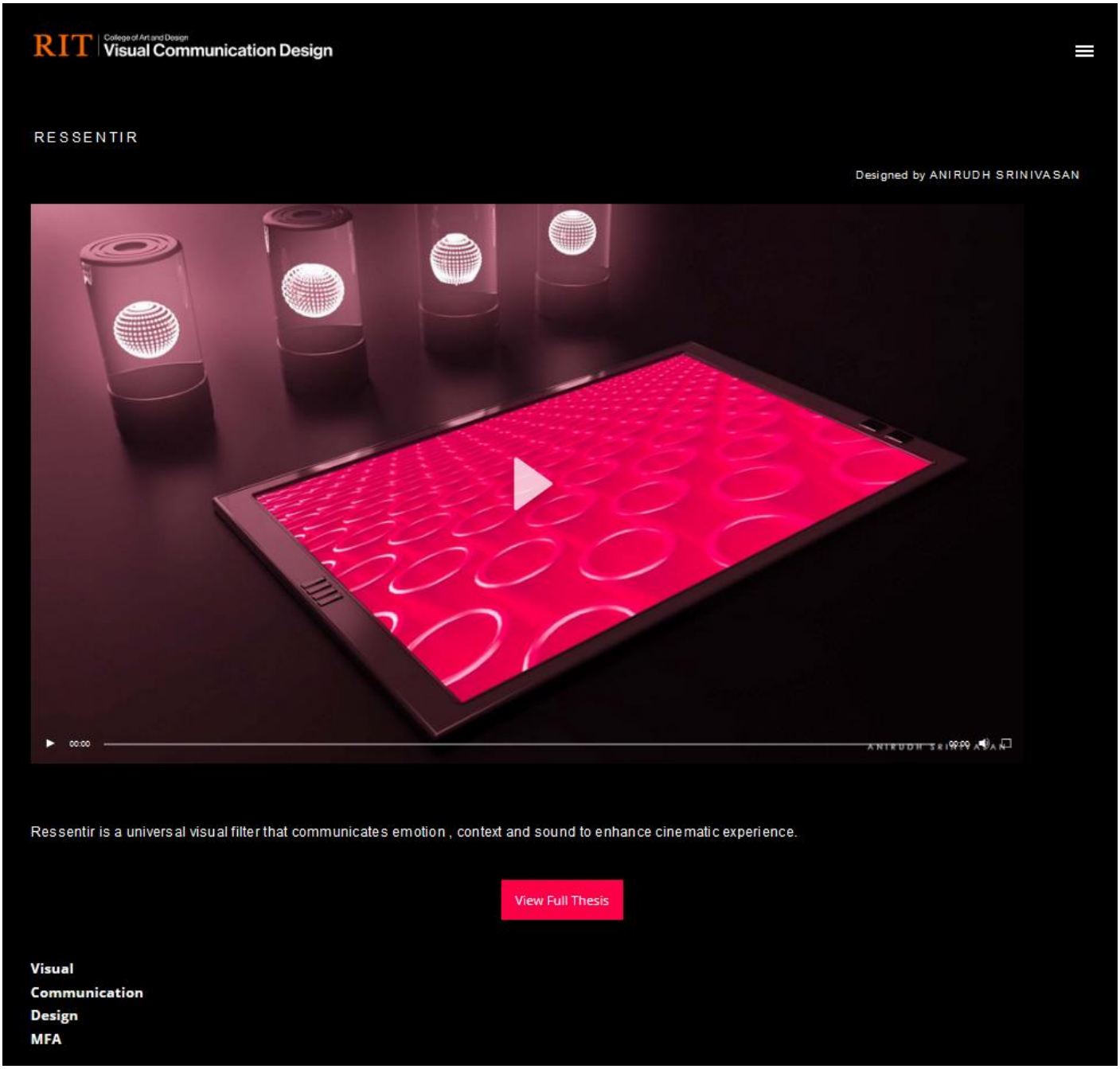
APPENDIX C: Screen captures of websites



LINKS

Semplice RIT Website: https://designed.cad.rit.edu/vcdthesis/project/ressentir-anirudh-srinivasan

Thesis Full Website: https://anirudhs96.wixsite.com/thesis-ressentir

Vimeo Video: https://vimeo.com/576589405