THE SOUND OF MEMORY | AN AUDIENCE DERIVED AUDIO VISUAL EXPERIENCE

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Abstract

The ubiquitous and portable nature of recording devices has changed the way society remembers and communicates. The prosthetic nature of device located memories in the form of text, still and moving image media constructs a digital self and not exclusively a clone of the organic self. The digital memory of this digital life is the entity that is under musical examination with The Sound of Memory, which intends to create a sonification of the digital life of the audience.

This paper discusses the interdisciplinary space being investigated by The Sound of Memory project. This project aims to develop an interpretive compositional framework to generate music from the digital memory of, that is the digital media carried by, the audience. The project deals with music, issue of memory in contemporary technological ecology, the democratisation of creativity, questions around creative authorship and also explores the notion of a digital life.

Keywords: music, composition, sonification, memory, audio-visual, mobile media.

Introduction

'The Sound of Memory' (TSOM) examines the possibility of the personalisation of music by observing, interpreting and responding to the digital memory of an audience, in the form of images, video and text. In essence, the project develops a way to compose music from images. The method of enquiry for this is the development of a compositional framework, to produce 3 musical audio-visual works that are unique to each audience. The outcome will then be fed back into the audience's digital memory, leaving the audience with the resulting media artifact. These creative works are intended to provide a meaningful musical response to the audience's photographic contributions and reveal new experiences. These new experiences are made possible by the shift of paradigm from a traditionally pre-determined musical experience that is crafted, rehearsed and performed, to a musical experience which is derived from the audience's supplied material, which creates a sense of ownership by the audience.

I have not been alone in the quest to interpret images in a musical form. As long ago as 1938 Evgeny Muzrin invested considerable time and resources into developing the ANS synthesizer. Named after the composer Alexander Nikolayevich Scriabin, who's own work delved into visual associations within compositional systems, the ANS would interpret an image etched onto a glass plate into music. Black putty was used to define the negative spaces and the etched image would allow light to pass through the glass and trigger corresponding harmonics in the synthesis engine, over time, to create the musical response.[1]

Whilst this advance in light to audio interpolation is significant for its time, as you can hear when using this instrument, the output lacks the emotional connection to the input image that I am seeking with TSOM.

The Three Proposed Creative Works are:

Individual Engagement – to develop the framework on a defined scale with an audience of one either as an installation or software experience
Group Consultation - to expand the framework and include repeated feedback/development cycles with periodic contact
Theatre Show – to engage a large audience in a traditional format

In terms of this paper, I will explain the interdisciplinary nature of this project in relation to music, memory, creativity and the creative process and the notion of a digital life, as indicated by the crossover regions of the interdisciplanary flower (fig.1). With each discussion is an example of works in the field that highlight some of the creative processes and outcomes proposed for TSOM.

Music

The three works proposed for TSOM are creative responses to a visual seed, which is the material shared by the audience, from their digital memory. This material is unseen until the time of the performance. This proposition raises significant and unique technical and creative challenges. The fundamental creative issue arises from the desire to devise a compositional structure that can provide a mood-defining outcome, yet take direction from an element of chance, the audience. This becomes a matter of how you organise sound and manage the interpretation of the audience material, which is at the core of the project.

There is a long tradition of utilising chance elements in composition dating back to the late eighteenth century with *Musikalisches Würfelspiel*, [2, 3] a musical dice game where the selection of phrases to be played is made by rolling dice or choosing one at random. This notion of using chance or non-authored elements was strengthened in the twentieth century, but gained prominence in the 1950's with works by John Cage (Music of Changes, 1951), Pierre Boulez (Éclat 1965), Karl Stockhausen (Klavierstück XI, 1956) and Iannis Xenakis (Pi-

Fig. 1. The Interdisciplinary Flower
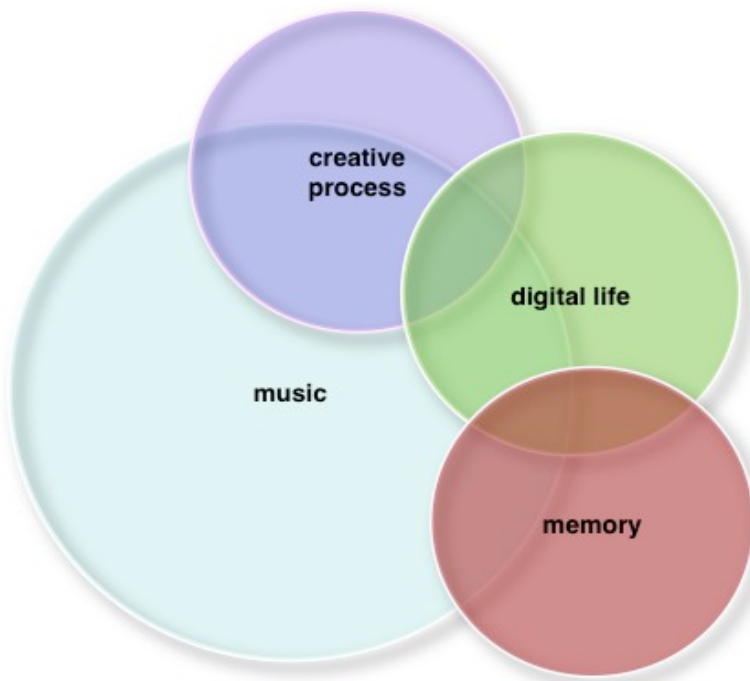
thoprakta, 1955) amongst others. This approach to music composition is known as aleatoric music. As described by Meyer-Eppler, "a process is said to be aleatoric ... if its course is determined in general but depends on chance in detail" [4].

It is from this tradition that I will draw to approach the compositional architecture of the project. The input, digital visual media, is indeterminate, resulting in a meaningful and unique musical response.

An aleatoric work of particular note and one that is commonly thought to be the dawning of the minimalist aesthetic, is Terry Riley's *In C* [5]. This piece presents a starting point for my compositional form, which aligns to the challenge of creating a tonal and musically informed outcome from a source that is external to the sphere of influence of the composer. *In C* is a collection of 53 musical phrases of differing lengths, but in a common key and meter.

The players determine the size of the ensemble, the instrumentation, and the order and number of repetitions of the phrases. The result is an unpredictable combination of the composed phrases of indeterminable length.

In a similar vein, computer game music has a similar agenda, to generate real time music that matches the visual narrative, in an adaptive manner. It is from this perspective that elements of ludology (videogame theory) and generative music will help inform the intelligence of the system.

The Listening Machine, by Daniel Jones and Peter Gregson with Britten Sinfonia 2012 [6] is similar in many ways to the proposed technical structure of TSOM, but the significant difference to TSOM is that it explores conversation, not memory. 500 English tweeters are being channeled into the machine to be filtered, interpreted and passed on as musical instruction to a compositional engine. The crowd sourcing of narrative data, the breakdown of that data into meaning, the re-interpretationof that data into musical language and the musical machine built on thousands of musical fragments recorded by the orchestra, represent a good proof of concept for a TSOM flow chart. Importantly, the composers managed the potential for the input to overwhelm the system and create an incomprehensible cacophony, through their filtering and averaging process. In addition to the subject matter, *The Listening Machine* is also distinguished from TSOM by the lack of feedback to the audience to allow reflection and further input.

Memory

We are what we remember. We are how we remember. If we consider memory as an agent of the present, then we could embrace Burnham's position that "the act of recollection is a fundamentally creative act, as well as an existential act, it is at once self expression and self constitution" [7]. In the context of this paper, this theory is being applied to historic works, specifically a detailed analysis of Schubert's late instrumental works like the String Quartet in G Major (D.887), and an observation of memory creation and recollection as an important compositional process in these works. I'm using this fundamental pretext to underlie TSOM: it is the process and context of the remembering that has an affect on the memory.

A dominant theme of this project is the role of memory within music, and music within memory, placed in a new media environment. It is not an examination of memory from the perspective of cognitive psychology or neurology, but rather involves treating memory as an agent of the present, like music, as an ephemeral experience. It is in the act of remembering that we create the memory.

This idea has been inspired by and has become possible as a result of the emergence of behaviours surrounding the ubiquitous penetration of media recording devices in the developed world. The portability of such technology has fundamentally changed how we remember events, people and emotions. The moments that are recorded and eventually shared are re-enforced. Conveniently, unlike biological memory, which is shared through speech or the written word, these digital memories can be shared without re-interpretation from the author. The digital memory becomes a media memory.

Media Memory is a term that crosses a number of disciplines but is referred to by Neiger, Meyers and Zandberg as "the systematic exploration of collective pasts that are narrated by the media, through the use of the media and about the media" [8]. Importantly for this project, this illustrates that the memory exists in the media. Through the act of looking into the media, which is the material of these prosthetic memories (as referred to by Reading [9]) I seek to find new meaning, context and emotion that has not been communicated in the act of recording and sharing. In the digital media landscape there is no meeting of the author, no interview, lunch, coffee, conversation or walk, but an unbiased presentation of the media, in this case, the encoded memories. Eisenberg believes in "an online ecology whereby creative production and expression are inseparable from social communication" [10]. With TSOM, I aim to provide an environment to observe this.

Augment me (2011), by Brad Miller[11] is a visually stunning piece that treats memory in a similar manner to TSOM. In this work Miller reflects on his own process of digitising his memory over an 11-year period. The photos he has taken of his physical life build a multi-dimensional digital memory of place, occasion and time. These all get brought into an interactive audio-visual installation context, such that the images are streamed in a manner that is influenced by the physical interaction of the (mostly oblivious) audience. Technically, a meta-tagging system is used to add an interpretive layer to the images to inform the display intelligence – again another similarity to what is proposed for TSOM whereby meta tags are attached to the incoming images and matched to the tags on dynamically exhibitable music objects.

Creativity and the Creative Process

The creative premise of TSOM engages a shift in the executive authorship of the work by using media contributions from the audience to drive the compositional framework. This ground up approach establishes a democratisation of creativity. This key observation of the structure of TSOM is inspired by the surge in the democratisation of news media through the proliferation of networked recording devices. In essence, the behaviours being studied in relation to Media Memory are what I hope to emulate in my creative process.

When someone records and shares a local event, the media representation? of that event may spread around the world without intervention from the traditional channels of distribution and control. The executive editor is removed, but the news is still distributed. Likewise, in TSOM, it is the unbridled sharing of memory by the audience that bypasses the composer's traditional role of complete control of the music the audience hears. In some sense it is a means of crowd sourcing content, within a defined context. The creative process commenc-

es when the audience commits the image to their device and decides not to delete it. They thereby curate their prosthetic memory and then share it with TSOM.

With the *Descriptive Camera* (Matt Richardson, 2012[12]), a descriptive photographic process was created which looks into an image for the story and prints out descriptive prose. It utilises crowd sourcing – whereby people have subscribed to participate in the project, to provide an analysis and interpretation of the image to then be sent back as prose. This project highlights the swell of global participants seeking to interpret meaning beyond the media.

Digital Life
All of the discipline areas being explored by TSOM can be encompassed within the notion of having a digital life: the digital you. The digital you often resembles the organic you, or parts thereof, but is an external construct of who you are either by design, circumstance or habit.

In the rapidly evolving personalised digital life ecology, our digital behaviours shape how the digital world sees, identifies, categorises and interfaces with us. This population and personalisation of the digital ecology is a notion that has been historically well defined by Negroponte:

"True personalization is now upon us. It's not just a matter of selecting relish over mustard once. The post-information age is about acquaintance over time: machines' understanding individuals with the same degree of subtlety (or more than) we can expect from other human beings, including idiosyncrasies (like always wearing a blue-striped shirt) and totally random events, good and bad, in the unfolding narrative of our lives" [13].

Negroponte outlined a roadmap of being digital in 'Being Digital' (1995) – a tome that has influenced my practice, and in particular, the theme of personal-

ising one's digital life. The field of personalisation has grown well beyond Negroponte's early musings to infiltrate everyday life. Ultimate personalisation creates an audience of one: the content is for you alone. In an audience environment however, you become a collective one. Pariser warns of the degree of personalisation in the contemporary information ecology and that your digital life may already be excluding you from knowledge. He warns of the perils of being trapped in your own *filter bubble*, [14] a world where information is not free, but rather it is captive to your perceived tastes, background and interests. Information is bound to the image of the digital you. He famously demonstrated this in his 2011 TED talk whereby 2 demographic twins searched the same topic in Google, yielding vastly different results. Likewise with TSOM, no two instances of a work would yield the same musical response. In contrast, a work with a fixed musical outcome but variable visual audience content is *Museum of me,* which was created by Intel in 2011[15]. This promotional web based experience taps into the participants' shared Facebook content, images, comments and videos as a source for the Museum of Me displays. It presents your digital life in a museum audio visual metaphor, with a fixed rate walkthough to see the art that is your life, including some virtual kinetic pieces containing versions of word art, set to a predetermined piece of music. This slick presentation merely scratches the surface of what is possible in this space but provides a unique and entertaining 'remembering' experience.

Conclusion
This paper presented a macroscopic view of the development of TSOM, which maps the path I intend to follow to build the compositional machine. The starting point for the architecture of the compositional machine presented in this paper

will be built as a test framework. This built framework will then facilitate the mapping of emotional connections between the visual and aural senses of the audience participants. The next design phase will require investigations into cognitive models that will inform this mapping process design, to produce the basis for the first work.

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Fig. 3. Descriptive Camera – © Matt Richardson (2012)