Approaches to Composition in Visual Music

An Artist's Reflection on Three Original Pieces

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ABSTRACT

This article discusses the author's visual music compositional practice in the context of similar work in this field. It specifically examines three pieces created between 2015 and 2017 that fused digital animation techniques with electronic sound. This approach contrasted with the author's earlier compositions, which featured electroacoustic music and video concrète.

VISUAL MUSIC

Like many of those referenced in this article, I approach my audiovisual creative practice with the perspective and skills of a musician [1]. Having filled various roles in conventional four-piece bands during my formative years, I began using computers in music composition in the early 1990s. The Amiga computer I used for sequencing had excellent graphics capabilities for the time, so it was a natural progression to experiment with creating visuals. These were videotaped and displayed on TV screens during my band's performances. Even though this parallel interest in visuals has grown significantly since then, I still perceive myself as a musician. This, I believe, imparts a particular flavor to my works, as I don't have the dedicated experience and visual adroitness of a true animator or filmmaker. However, with the continuing advancement, accessibility and convergence of audio and visual technologies, it is tempting to utilize these tools creatively. McDonnell and others describe the amalgamation of music and video arts as a practice under the sonic arts umbrella and refer to it more specifically as visual music [2,3]. It is a genre that hit the mainstream academic consciousness in 2005 with the publication of articles and an associated DVD [4] in the winter edition of the *Computer Music Journal*. In this artform there is an exploratory interaction and interplay between the musical elements, often of experimental

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genres, and the visual, created by animation or video sources. The visual music jointly discussed by Battey and Fischman firstly

> aims to achieve a delicate balance in which all media interact tightly on an egalitarian basis. Second, the organising and structuring of materials in film/animation generally follow an external narrative; visual music, however, often does not, even where there is an implied narrative. Instead, its organisational logic is ultimately dependent on the articulation of materials in time space according to their intrinsic attribute (e.g. shape or colour in the case of images; spectral content and morphology in the case of sounds) [5].

In his own creative practice, Battey uses digital animation techniques, whereas Fischman uses video footage and other materials. Their compositional outputs can equally be described as visual music, as the relationships between sound and image are key, not the material properties of either medium. Categorizing them in this way, however, is a useful distinction, and for the sake of this discussion the techniques of video composition will be compared with animation, as it aids understanding of my own artistic methods.

Electroacoustic Movies and Video Concrète

Writing in 2012 about the evolution of his compositional practice, Joseph Hyde discussed video concrète, where video clips are treated as entities analogous to sound objects. In this way compositions are created by working with the transformation and development of recorded materials in a way similar to *musique concrète* [6]. The results of this can be seen in *Vanishing Point* [7]. At the time, Hyde described this approach as quite rare, but a growing number of artists are creating exceptional compositions via similar techniques. Nick Cope, for example, discussed his collaboration with Tim Howle and their composition of "electroacoustic movies" [8]. Cope's video scratch methodologies align concordantly with Howle's electroacoustic compositions in works such as *Globus Hystericus* [9]. Other artists relevant in this context are Inés Wickmann and Francis Dhomont,

who have a similar ongoing collaboration, combining electroacoustic compositions with digital video in pieces such as *Le Silence du Léthé* [10]; João Pedro Oliveira's electroacoustic videos have become accomplished, as evidenced by *Neshamah* [11].

Animated Visual Music

Another popular technique used in visual music composition is abstract animation. This follows the trajectory of pioneering artists such as Oskar Fischinger and Norman McLaren, who worked with direct animation techniques using film stock. In the mid-twentieth century, John Whitney propelled animation into the digital realm with his early computer-generated motion graphics. Whitney's geometric vector graphics created harmonious visual patterns observable in his *Matrix I* and *Matrix III* films [12,13] and were an inspiration to my own compositions discussed below. In more general terms, animation makes it possible for the artist to be very precise in shape, color, transformations, motion and other parameters to create any desirable relationship between sound and moving image. This correlates with sound synthesis in music, where the composer has very precise shaping capabilities over each sonic parameter. Also compare this correlation with that shared between found sound and video footage. Artists currently active in visual music animation include Bret Batty, such as in *Estuaries 3* [14]. Similarly, Jean Piché is a composer who meshes moving images and music in a new hybrid form he calls "videomusic" [15]. As an electroacoustic music composer, Piché has produced many multimedia pieces combining video, and more recently animation, with sound.

Other Categories and Hybrids

Although this discussion segregates visual music according to its production techniques, this is only one way of categorizing works. Compositions could also be considered in regard to their use of abstract or representational imagery. Kanellos noted [16] that 62% of works screened at the Sound Image Symposium [17] were actually composed of abstracted imagery, indicating that this is a popular style. There are also hybrid compositions such as *Open Circuits* [18], in which animated Winamp visualizations are combined with video footage. This piece also contains both abstract and real-world representational imagery.

THREE ORIGINAL ANIMATED COMPOSITIONS

Considering my own compositional output during the period under discussion, I wished to extend the animation work I had been developing toward the end of my PhD. This coincided with

a move away from *music concrète* and greater reliance on sound synthesis techniques. I was also progressively drawn toward abstract digital animation techniques, having had similar experience in sound synthesis and an ongoing fascination with simple geometric forms and how they could be manipulated to produce more complex imagery. Quartz Composer was the chosen animation tool, as it is very adaptable to creating these types of motion graphics, and some of the patching workflow carries over from music synthesis applications such as Reaktor and Max.

Circadian Echoes

Although it may appear entirely synthetic, *Circadian Echoes* [19] was actually created through a hybrid animation/video technique. The foreground graphics are animated, but a manipulated video layer was used to create the backgrounds, as seen in Fig. 1. The video treatments consisted of blurring and color effects, which gave the background a more textural quality in line with the soundtrack. *Circadian Echoes* was originally inspired by Norman McLaren's film *Pas de Deux* [20]. In this film, two silhouetted dancers perform a pas de deux and their movements are enhanced by visual effects. Of particular interest are the dancers' movements between points across the stage, the flowing motion of their arms and McLaren's video postproduction work. The aim was therefore to translate some of these attributes into an abstract composition.

The compositional process for creating the foreground imagery of *Circadian Echoes* involved developing a method of animating gestural motions of a CGI line, which was intended to be a mimetic representation of the dancers' arms movements. Development stage 1 [21] had a single spline curve moving in response to a mouse click. Development stage 2 [22] saw the addition of video feedback and rotation, which created optical effects similar to those seen in McLaren's work, as shown in Fig. 2. Further processing and multiple overlays created circular forms and further surrogacy from the recognizable dance-like gestures.
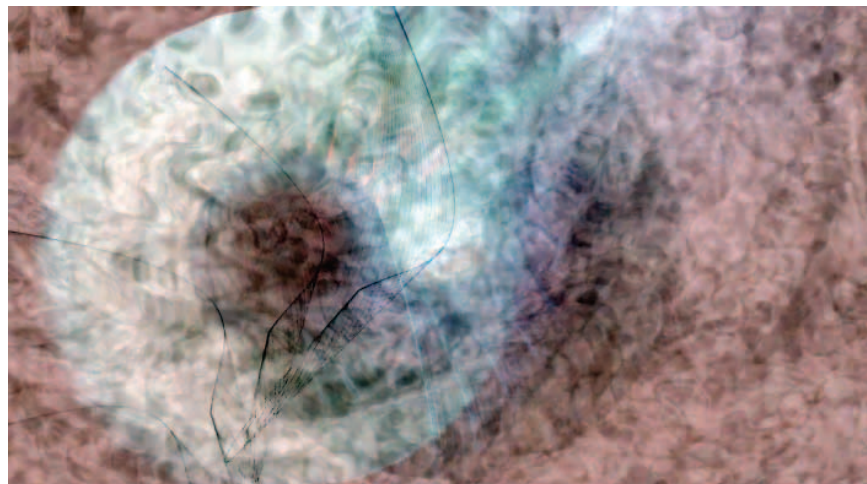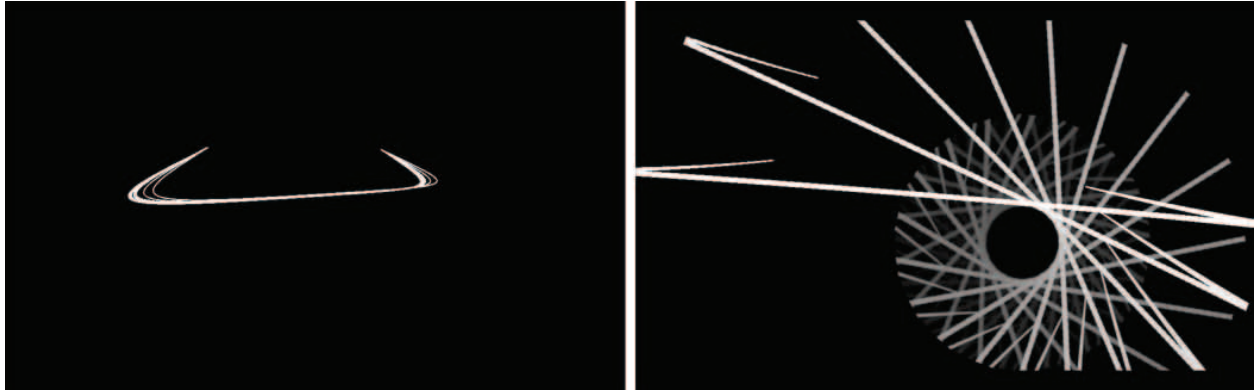

Fig. 1. Still from *Circadian Echoes*. (© Dave Payling)

Fig. 2. *Circadian Echoes*, development stages 1 and 2, showing an individual spline curve (left), with video feedback and rotation added (right). (© Dave Payling)

The macro level compositional strategy was to create passages of tension and release, which, as discussed by Evans, can be used as a method for resolving tension in compositions and visual montages [23]. This was achieved by development of the abstract forms up to 2'55", when they resolve into a balanced, mirrored symmetrical pattern coincident with a diminuendo in the soundtrack.
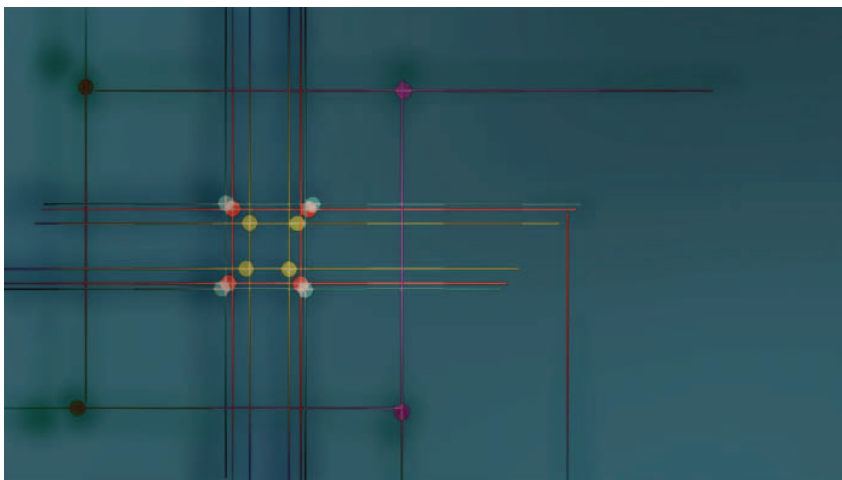
Synthetic Electro Replicant

Synthetic Electro Replicant [24] was the first of my compositions to use beat-based music and was an attempt to meld my interests in dance music with visual music. It uses animations that were inspired by John Whitney's *Matrix* films and the way they use repeated vector graphic shapes to create more complex interwoven patterns. The integration of rhythm into visual music created sequences that I conceptualized as "audiovisual syncopation." Syncopation is a technique known in music and is created by disturbing the expected rhythmical flow. "Audiovisual syncopation" was introduced here and was created by offsetting the synchronization between

sound and image. This occurs most visibly in the section between 1'50" and 3'22" (see still in Fig. 3). During this passage, the motion of the lines occurs over durations that are integer multiples of 0.2 seconds (0.2, 0.4, 0.8, etc.). The lines can move from one point to another in 0.8 seconds, for example. While this happens, the percussive sounds are offset by a factor of 1.5 (e.g. 0.2 × 1.5 = 0.3 sec), so the relocation of the line completes shortly before the sounds are heard. This "offset-synchronization" creates tension and anticipation between visual and auditory expectations. Color was used in this composition to enhance the emotional qualities of the video and as a means of giving each section its own character.

Inspired by trance and other dance music genres, a fixed 4/4 time signature is the foundation of the soundtrack. It is primarily beat-based, but initially the textural sonic elements accompany the video in a loose and complementary fashion. The rigid 150-bpm tempo is gradually revealed as the piece progresses and the instruments become tightly synchronized to the beat and the shapes lock to the rhythm.

Neon Vibration

The final piece under discussion, *Neon Vibration* [25], is an animated étude, which was in part inspired by oscillographics techniques whereby laser systems are driven by analog synthesizers [26]. It was my first attempt at producing video for full-dome screening and premiered in Mexico [27]. I sought to create rich visual textures and lighting effects from a minimal input, this time coupled with the application of more extensive video feedback (Fig. 4). The intended compositional technique was quite simple but became relatively complex and time consuming. I envisaged that parametric mapping would solely be used to translate control voltage

Fig. 3. *Synthetic Electro Replicant*, animated lines during the AV syncopated section. (© Dave Payling)
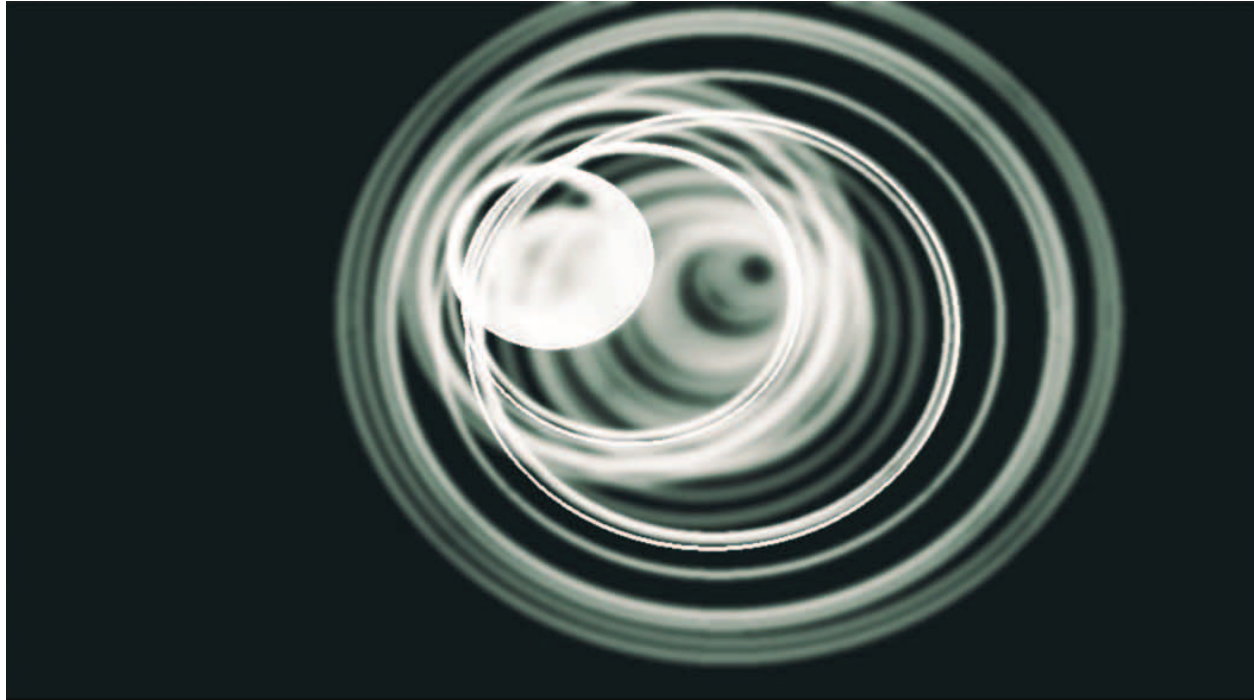
Fig. 4. Still from opening section of *Neon Vibration*. (© Dave Payling)

(CV) data from a modular synthesizer to various visual reactions. There was enough flexibility in the visual "instrument" to permit this, and initial experiments were satisfactory. However, much intervention was required to form it into a coherent work, and additional compositional structure and complexity was determined through manual keyframing. This has been a recurring theme in my practice whereby algorithmic processes have generated useful ideas and source materials, but the finer structural details and narrative progression required composer action. Garro discussed [28] this issue with reference to a continuum whereby the processes of composer rendition and interpretation occupy one side of a scale and automated parametric mapping occupies the other. He discussed a series of examples using a range of approaches between these extremes, with varying qualitative results. Battey and Fischman suggested a successful mix of correspondences, and higher-order intuitive alignment occurs somewhere near the middle of the continuum [29].

The music for *Neon Vibration* was inspired by the Dance Chimes device. This is a playground and installation instrument that triggers bell-like timbres when a user steps on one of nine pitched chimes. It is effectively a stochastic melody generator, which was emulated in sound synthesis. Two Reaktor modular ensembles produced sonic textures that were harmonized on the pentatonic scale used by the chimes.

REFLECTIONS

The general visual design concept for the above works was the use of simple repeated geometric forms coupled with synthesized and beat-based music. This growing interest demanded practice and rendition. Quartz Composer was useful for producing these animated vector graphics with gestural qualities, which could be synchronized with music. Animated shapes were, however, less likely to produce textural color spaces, even with feedback effects, and experience showed video concrète is generally more adept at producing this type of imagery. Although thematic concepts such as emulating human gestures were integrated into the visual patches, the compositional process was always more protracted and fluid than expected and was adapted to the audiovisual outcomes as they revealed themselves. The unexpected synergies that emerged often led to a feeling of the composition being in charge and me, as composer, having a supervisory role in the evolving work.

I now consider visual music as an expressive artform within the wider field of contemporary art. It extends and complements the compositional techniques used by musicians; the processes they are familiar with can be applied in another medium. Such a process is eased by the similarities in workflow and interface design between sound and visual production software. Furthermore, visual arts can inspire the musician and help extend their repertoire. In this context, see my discussion on Thomas Wilfred's Lumia artform [30], which led me to analyze compositions in terms of its three factors and provided a conceptual toolkit for aiding their development. I plan future pieces that combine rhythm in sound and vision. Beats, repetition and irregular timing structures appeal both for their simplicity and ability to create complex interactions and for audiovisual relationships.

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17 The Sound Image Symposium is an annual event in Greenwich, U.K., that explores sonic and audiovisual practice. It screens visual music works from international artists and has hosted talks from key figures in the genre including Michel Chion, Joseph Hyde and Cornelia Lund.

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