COMPUTATION, MANIPULATION, PERFORMANCE, FOUND OBJECT: FOUR COMPOSERS APPROACH SOUND AND VISUAL IMAGE

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ABSTRACT

This paper focuses on the technical and aesthetic approaches of four composers who work with technology to create pieces for sound and image. It describes the technical means employed by each composer, while also commenting on the experiential/ emotional content of their work. To illustrate these comments, excerpts from recent compositions will be shown, including Bret Battey's *Mercurius*; Jean Piché's *Boréales*; Jaroslaw Kapuscinski's *Juicy*; and my own *Fragile Horizon*.

1. The Eyes and Ears

In a recent interview, film sound designer and editor Walter Murch speaks of the way a viewer might experience an image differently when it has been "emotionally conditioned by the sound." [Kenny/Murch 1998] He compares the directional difference between the two senses (eyes facing forward, ears listening to the sides but taking in a 360° spherical field), and then speaks of sound in film as a "conditional presence." [Kenny/Murch 1998] "You take the emotional treatment that sound is giving, and you allow it to actually change how you see the image." [Kenny/Murch 1998]

For some of us experienced primarily in the sonic arts, the allure of a sonically transformed visual experience has become irresistible. This has resulted in a diverse genre of works and technical approaches, some oriented more towards the visual, others more towards sound. But it is the means through which sound and image inform and transform each other that draws a composer to this medium. Enticed by the ways in which sound and image embody a total experience, composers have embraced the opportunity to develop technical and theoretical approaches to this new and varied medium.

Visual music, video music, intermedia, multi-media – all share a common base. Through advancements in technology, a common platform for the manipulation of sound and image has evolved, offering composers trained in electroacoustic composition a familiar opening to the world of visual creation and manipulation. This, combined with the time-based format of the two media, has created an easy commonality for composers who are visually inclined.

2. Computation

Using an algorithmic process, Bret Battey has created some of the most intriguing sound and image works of the last few years. His work draws on influences as diverse as software coding, classical Indian vocal music, spectral manipulation, and

Buddhist Vipassana meditation. In his work he attempts to represent a kind of "emotional ebb and flow", positioning at "the true core of the work...a way of experiencing the world." [Battey 2010]

Implementing a custom visual algorithm as a plug-in in Apple's Motion video-compositing software, he "animates nearly 12,000 individual points with Brownian noise, motion blur, and circular motion." [Battey 2010] This he "feeds" with both still and moving visual images as source material. The end result is a continuously evolving density of swirling, dispersing, and coalescing visual material. Battey emphasizes that once the algorithm is set, "there are no cuts or splices in the visual material; the whole piece unfolds as a continuous transformation of the behavior of the points." [Battey 2010]

For sound generation and manipulation, he uses a self-coded Pitch Curve Analysis and Composition System. This system is inspired by classical Indian vocal music, making mathematical models of glissandi found in this music, and allowing for the editing and synthesis of these models. Using this system, he renders shaped glissandi between just-tuned pitch steps of a sample of the Armenian duduk. He convolves these glissandi with the spectrum of the sound of the Indian tambura. The interaction of the two spectra creates tensions and release (ebb and flow) to form the core sound material of the piece.

Although Battey takes a complex technical approach to the creation of this work, the end result is one that is supremely experiential. Although the process is technical, he insists that his first priority is to express "a distinctive way of being in the world." [Battey 2010] To this end, the experience of the work itself, while intimately tied to its technical creation, transcends the processes involved without in

any way negating their fundamental existence.
[Excerpt: *Mercurius* – Bret Battey]

3. Manipulation

Jean Piché began working with sound and image in the mid-1990s when he became aware of the similarities involved in manipulating the two media. "It's the same workflow in the computer...you have your timeline, your sounds, your processing chops, and with the timeline you organize your coherent discourse." [Steenhuisen/ Piché 2004] Although technically sophisticated, his work relies primarily on manipulation. In *eXpress,* a commission from the Institut International de Musique Electroacoustique de Bourges in 2001, he filmed on the Bourges-Paris S.N.C.F train using very fast shutter speeds and a very large aperture. Through compositing and acceleration he explored "velocities to the point of kinetic outrage." [Piché 2002] The sound also incorporates processes of manipulation utilizing train sound, site recordings, and synthesis to a similar end. A striking element of this work is its use of three-channel video. Presented in an extremely wide 2160 x 480 aspect ratio through the use of three projectors and continuous screens, it extends across the entire front of the room, wrapping the audience in a greatly expanded vision, and overwhelming them with the velocity of image and sound. Most of Piché's works since 2001 are for three-channel video.
[Excerpt: *eXpress* – Jean Piché]

In *Boréales* from 2009, Piché continued with the manipulation of video, but in this case utilized a process akin to granular sound processing, driving the parameters of a particle generator with video taken from a single shot spinning a camera in a public square in France. The visual component of the piece is the result of this continuous process, without edits. Computer sound for

most of Piché's works is created using his own audio software, Cecilia, which serves as a highly flexible and intuitive interface for CSound. In *Boréales* he displays a preference for formant synthesis, which yields a sound world of highly extended vocal and woodwind timbres. (Cecilia can be downloaded from the web for free.)

In discussing the concert experience, Piché is direct in expressing a level of frustration with purely electroacoustic performances, and states that "video music restores the visual link I find essential for public presentation." Further he adds, "That's not the reason I moved into visuals. I did it because the combination of abstracted image and sound make a fertile ground where an entirely new poetry can grow." [Steenhuisen/Piché 2004]
[Excerpt: *Boréales* – Jean Piché]

4. Performance

Jean Piché's comments on electroacoustic performance are similarly shared by some composers. Jaroslaw Kapuscinski addresses this question and many others in a most creative and positive manner through his compositions and theories on intermedia.

In regard to the relationship between the two media, Bret Battey places an emphasis on similarities in form to create links or relationships between the visual and the aural. Jean Piché addresses the linkage by saying that "meaning is extracted from connections between the sonic and visual," and that relationships are found within the work where "you unequivocally know that the sound you have just heard is generated by the object you are seeing." [Steenhuisen/ Piché 2004]

The ideas of Piché come close to those of Kapuscinski but stop short of the concept of intermedia, as Piché insists that "the music has to be able to live on its own." [Steenhuisen/Piché 2004] In contrast, Kapuscinski seeks a direct intermodal linking: "While the freedom and individuality are the base for each dimension, it is the relationship between dimensions that constitute the medium." [Kapuscinski 2001] Kapuscinski creates an art form where sound and images are intimately and permanently linked to create intermodal gestures in time.

Most of Kapuscinski's recent intermedia works have been composed to be performed live from a grand piano, directly addressing the issue of presentation. Trained both as a pianist at the Chopin Academy of Music in Warsaw and as a composer at U.C. San Diego, Kapuscinski creates these works for himself, furthering an intimate connection between the creation and presentation of the composition. The simplicity of musical material and image serve to heighten the intermodal relationship of the work. Performance is accomplished through the use of the Buchla Piano Bar, which tracks the movement of the keys and converts the information into control signals for the video images.
[Excerpt: *Juicy* – Jaroslaw Kapuscinski]

5. Found Object

In my own works, the pursuit of sound and image comes closest perhaps to that of Jean Piché, but with a very minimalist level of manipulation, and is coupled as well with the simplicity of Kapuscinski. I am not a technologist but rather a composer who uses technology to capture an expressive moment. I seek to create visual objects and sonic gestures that are embedded with both recognition and a sense of the unfamiliar. The visual elements in my work begin as simple photographs or video, capturing moments from the natural world. Small portions within these images are isolated and subtly manipulated to create a sense of

dream, as if they exist as memories, but perhaps from a past life.

Music is also based on subtle but familiar material. Computer sound serves to paint a spatial backdrop on which a solo performer displays simple melodic and harmonic material. The sound evolves as the images do, in small gestures that accumulate to create larger structural shapes. Spatiality is enhanced through minimal processing of the acoustic sound and positioning of the music throughout a four-channel space. The space of the screen is enhanced through the isolation of visual elements across its surface, as if offering a view into a deeper space beyond.

As with Kapuscinski, I also feel that live performance is an essential element in the experience of a composition, and that the music and visual images are not separable but absolutely require each other for their existence. Although the sounds and images in my work are simple, a computer performer joins the acoustic player on stage to shape the sounds and visual elements live. This creates a performance space where the acoustic player is free to shape the time of the work without concern for the technology. The familiar software Max/MSP/Jitter is used for the computer performance. This program is also utilized by Kapuscinski for performance and by Battey for sound manipulation during composition.
[Excerpt: *Fragile Horizon* – Robert Coburn]

6. Conclusion

The composition of works for sound and visual image is a young genre, but one that is expanding rapidly. Composers develop individual processes that correspond to their own creative vision, but these processes seem to coalesce around certain compositional actions. At the core of this genre is a shared belief that an experience, both personal and powerful, can be created through utilizing technology to merge sound and visual image.

7. References

[1] Battey, Bret. *Some Reflections on Autarkeia Aggregatum* (2010) (Unpublished manuscript).
[2] Kapuscinski, Jaroslaw. Composing with Sound and Images (2001) www.jaroslawkapuscinski.com/writing.html
[3] Kenny/Murch. *The Search for Order in Sound and Picture* (1998) www.filmsound.org/murch/ waltermurch.htm
[4] Steenhuisen/Piché. *An Interview with Paul Steenhuisen* (2004) jeanpiche.com/ text.htm
[5] Piché, Jean. *eXpress* vimeo.com/ 7136044

8. Author's Profile

Robert Coburn is a composer and sound artist. His creative work includes concert music, both acoustic and electroacoustic; live, interactive computer music pieces with video; temporary sound environment installations; and permanent soundworks as public art. His music has been performed throughout North America and in Europe. His permanent soundworks are installed across the landscape of the Oregon Convention Center (Portland, Oregon) and along the Avenue of the Arts (Philadelphia, Pennsylvania). Documentation of his soundworks was exhibited as part of "nada – an experience in sound" at the Indira Gandhi National Centre for the Arts, New Delhi, India. Dr. Robert Coburn is Chair of the Music Studies Department and Program Director of Music Composition and Theory at the Conservatory of Music, University of the Pacific, where he also directs the SoundImageSound Festival.