

Storytelling with Voice and Computer

Opera Today asked composer Zack Settel to help us understand some of the new technologies now being used in opera and in his work *The Ice Child*, which the Center hopes to produce in the near future. This article has been shorted to fit into available space.

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The origins of opera were around the start of the 17th century, with Peri and Monteverdi. But if we regard opera as a vehicle for storytelling, we can look at the ancient Chinese from the Soong Dynasty, hundreds of years before, who engaged in Xingxi, or Shadow Play—story telling that includes the technique of optical technology. Nowadays, there are of course more real-time technologies available that deal with electronic audiovisual content. Increasingly, we are seeing live performances which incorporate techniques that were formerly restricted to non-real-time forms, such as Cinema or Architecture and Design. Michel Lemieux, whose theatrical works deeply incorporate music and movement, employs the use of performer-synchronized image projection, rendering visible to the audience, the trails of limbs and bodies moving on stage. There's also Robert Lepage, who brings a markedly visual, if not cinematic, approach to his latest work, *La Damnation de Faust*. Lepage too, makes extensive use of electronic visual integration in the work. For him, there is a motivation to “invite the logic of film into the live performance and make it feel authentic”. In the production of John Oliver's *Alternate Visions*, developed by Chants Libres, real-time 3D graphic computer simulation is used; the rendered image is projected on stage in order to extend the action, décor and dimensionality of the real performance space. It's also quite interesting to see how performance ensembles such as the Cirque de Soleil and La Fura dels Baus use these kinds of technologies on a much more massive scale, to tell their stories.

So far I have talked about technologies relating to images and light. Technologies for sound projection, manipulation, transformation and the like can intervene on a level closer to, if not within the music itself. Today we find great utility in applications of audio technology which serve to improve sound quality during performance, such as amplification and diffusion of voices on stage. However, from an artistic point of view, the applications of chief interest are those which are musically integrated into works. In composer Josh Fineberg's *Lolita, An Imagined Opera*, sound processing technology is used to allow one person's voice to be mapped onto the prerecorded voice of another, effectively allowing one performer to sing their words with a vocal timbre belonging to others. The technique is employed to allow the main character, Humbert, to tell a tale using the many different voices of the opera's story.



Zack Settel

Another musical use of audio technology in live performance can extend a singer's instrumental range—meaning that a singer's voice may produce timbres and even additional notes resembling more the sounds of other instrument types, such as percussion, or strings. This is accomplished by using the computer to analyze the voice in order to recognize atomic parts of speech (sung or spoken), such as the sounds of vowels and consonants (various fricative sounds: tongue against teeth, hissing, 'ss' 'zz' etc.). When recognized, a given sound, such as a sharp 'T' can be used to trigger a bell sound. Or, a 'Z' sound, when detected in the middle of a phrase, can cause the remainder of the same phrase to be reverberated, delayed, or transposed. In short, it makes it possible

to continuously transform and/or accompany a singer's voice in variety of ways, based on the nature of what is sung. And of course, what is sung (?): the libretto. Suddenly, it is possible to regard the text of the libretto as a map of sorts for computer processed timbral extensions to the singing voice. This technique, developed by the author, is used in his opera, *The Ice Child*, for musical purposes and dramatic effect. Musically, the technique offers the possibility of self-accompaniment, thus allowing for an unaccompanied soprano's aria to become a harmonized three-part canon. Dramatically, the story of the soprano's split-personalities is formally rendered by the three voices of only one soloist.

In the above examples, we find a strong integration of computing-based technologies. And, in these examples, the technology is employed to enhance the telling of a story, i.e. the delivery of the work's message(s)—narrative, formal or otherwise. In the process, new forms of presentation, transmission and delivery are discovered, experienced, and in turn, incorporated in subsequent works. Then finally, new artistic forms emerge, and our aesthetic language is expanded. All this takes time, of course, but depends nonetheless on the ways that we are currently telling our stories.

-- Zack Settel

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Zack Settel has composed many works for the stage, films, video, and television, as well as musicals and dance numbers. His work on the CENTAUR, ICMA, MIT Press, and Empreintes Digitales labels is distributed by Editions Ambrosio in Paris. His music is played regularly in North America, Europe, and Asia. Settel has worked with many groups, including the Ensemble Intercontemporain (Paris), the Nouvel Ensemble Moderne, Zeitgeist (Minneapolis), and the California Ear Unit (Los Angeles). His work generally integrates live interactive electroacoustic processing systems. He is currently an Associate Professor of Music Composition at the University of Montreal.