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# About This Issue

In this issue's interview, Trevor Wishart discusses his distinctive and multifaceted career as an independent composer of electroacoustic music. Referring to his compositional process as "slow improvisation," he describes the three main phases of his approach to creating a piece: conception, sound processing, and structural formation. For Mr. Wishart, sonic transformation is central, and the voice is a paramount sound source. He explains that the voice's timbral flexibility is unmatched by traditional instruments; this flexibility is displayed in his own vocal improvisational performances as well as his electroacoustic compositions. Mr. Wishart goes on to discuss some of the many techniques he has invented for sonic metamorphosis. He has long been a key figure in the Composers' Desktop Project, an organization that has produced "a vast collection of non-real-time signal-processing software." In addition to his activities in composition, performance, and software development, Mr. Wishart is also well known as a teacher and author. Following his widely read volumes, *On Sonic Art* and *Audible Design*, another book is in the offing. The interview concludes with a look to the future.

*Front cover.* The strikingly modern Philips Pavilion at the 1958 World's Fair in Brussels was designed by Iannis Xenakis for Le Corbusier. Edgard Varèse and Xenakis composed the Pavilion's electronic soundtrack (*Poème électronique* and *Interlude sonore*, respectively). This composite image, which superimposes a computer-generated image on a 1958 photo, was provided by the authors in this issue who have reconstructed the Pavilion and the multimedia *Poème électronique* using virtual-reality technology.

A half-century ago, Edgard Varèse composed his eight-minute *Poème électronique* in collaboration with the architect Le Corbusier for the Philips Pavilion at the 1958 World's Fair in Brussels. Combining recorded and electronic sounds, this seminal work of electroacoustic music was presented as part of a multimedia installation conceived specifically for the unusually shaped building (which was designed by Iannis Xenakis). Unfortunately, the Pavilion was demolished after the fair ended, stripping Varèse's soundtrack of its multimedia context and its groundbreaking spatialization, in which sound was heard to travel along complex paths, thanks to the presence of some 400 loudspeakers. Vincenzo Lombardo and his co-authors have taken on the task of fully reconstructing the original three-dimensional multimedia experience through virtual-reality technology. Their article in this issue describes how they applied philological methodology in studying the extant sources about the Pavilion, which include documents, sketches, scale models, photos, films, a control "score," and analog audio masters. The authors have implemented some virtual-reality versions of the *Poème électronique* as well as a simpler

*Back cover.* A selection of illustrations from the article by Vincenzo Lombardo et al.

realization for the Web. Future concert performances of the *Poème* can be informed by this important research.

Christopher Ariza's article takes us into the realm of fully automated composition. The author critically examines the frequently proffered notion of a musical Turing test. In the test that Alan Turing described, an interrogator tries to ascertain, through the written word alone, whether he or she is communicating with a human or with a computer. In Mr. Ariza's view, the Turing test requires the medium of language and cannot be properly applied to music. The article includes a substantial survey and categorization of putative Turing tests (musical and otherwise) and their relatives. The author argues that it is more productive, in evaluating generative music software, to examine the design of the system and its user interface than to try to distinguish the system's output from manually created music.

This issue includes two articles on musical applications of digital audio signal processing. The first, by William Sethares and his co-authors, continues a line of investigation that the authors have recently been presenting in *Computer Music Journal*

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and elsewhere. Here, spectrum analysis is used to ascertain the partials of a sound, which can then be mapped to new frequencies in a sonic transformation that minimizes “sensory dissonance” in a variety of tuning systems. Another use of the technique is for morphing between two timbres. The authors present their Max/MSP-based software: the Spectral Toolbox and the TransFormSynth application. The latter includes a unique user interface whose tuning slider and “tone diamond” facilitate real-time modifications of the tuning system together with corresponding changes in the spectrum.

The final article, by Jyri Pakarinen and David Yeh, concerns digital simulation of vacuum-tube amplifiers. In the last year, each of these two authors published another article in *Computer Music Journal* related to the electric guitar. Their current joint offering comprehensively surveys

the literature, including numerous patents, on digital models of tube-based guitar amplifiers. Written as a tutorial, the article first explains how vacuum tubes operate and what causes the dynamic nonlinearities that produce the familiar distorted tube sound. Then it discusses digital models of the linear part of the amplifier, known as the tone stack. This is followed by an extensive review of nonlinear signal-processing techniques in tube-amp models. These techniques include static wave-shaping, ad hoc nonlinear filters, analytical approaches, and solving circuit equations using numerical methods. The authors write that the tube amplifier’s complex, dynamic nonlinearities have so far resisted accurate, real-time emulation by true physical models.

In the Reviews section, various writers appraise an event, a book, a CD, and a CD-plus-DVD set. The

event was the Seoul International Computer Music Festival in November 2008, and the reviewer highlights some unusual features of this Korean conference. (Concerts were limited to one per day, which, in addition to some obvious drawbacks, had the advantage of allowing much longer rehearsals. The programming for one of the concerts was chosen not by a jury, but by the performing ensemble. Composers were not required to attend but were encouraged to do so, through free lodging for international composers and an absence of participation fees. Finally, the concert-goers consisted mostly of the general public.) In this issue’s book review, associate editor James Harley examines a substantial French volume on the history of the Groupe de Recherches Musicales (GRM). Finally, reviewers evaluate discs by Drew Krause and Zbigniew Karkowski.