
About This Issue

This issue heralds a new era for *Computer Music Journal*: The entire journal will be available as digital files on the World Wide Web. This service is provided free of charge for subscribers to the printed journal. The initial electronic version will likely be delayed until a month or two after the print version. Subsequent issues, however, will appear in print and on the Web more or less simultaneously. See <http://mitpress.mit.edu/CMJ> for more information, including instructions for retrieving the electronic version.

Articles on a broad range of topics fill this issue's pages. The authors of the opening contribution, David Temperley and Daniel Sleator, have accomplished a software implementation that performs both metrical and harmonic analyses of music, based on a technique called preference rules. The metrical preference rules build upon Fred Lerdahl and Ray Jackendoff's ground-breaking work on musical grammar, *A Generative Theory of Tonal Music*, published by MIT Press in 1983. The harmonic rules control the choice of chord root for a segment of a musical passage. Significantly, the harmonic analysis is not restricted to simultaneous notes, and the rhythmic analysis can accept performance data that has not been quantized. Mr. Temperley and Mr. Sleator show how metrical and harmonic features are intertwined; rhythmic considerations can influence the choice of harmony, and vice versa.

Front cover: An abstract computer-generated image by artist Frank Simmerlein. (Courtesy of Steinberg GmbH.)

Computational music analysis of this sort can shed light on human cognition, the authors assert.

Reducing additive-synthesis data has been an ongoing problem in computer music research. Real-time software synthesis only increases the problem's severity. Researchers have answered this challenge in both the time domain (for example, by piecewise-linear approximation of envelopes; see *Computer Music Journal* Volume 20, Number 2) and the frequency domain (for example, by grouping partials; see *Computer Music Journal* Volume 21, Number 2). A newer approach, multirate additive synthesis, partitions the frequency spectrum into several bands, and then performs a simple time-domain data reduction by applying a different sampling rate to each frequency band. However, the choice of bands is not necessarily straightforward, being highly dependent on the particulars of the signal that is to be resynthesized. Desmond Phillips's article in this issue provides a thorough treatment of the theory of multirate additive synthesis. He argues that significant computational savings can be achieved by a simple unified strategy, one that uses textbook filter banks and that optimizes calculation on the basis of the expected pitch dynamics of the signal.

The next two articles center on historical and sociological considerations. Martín Fumarola interviewed Chilean electroacoustic pioneer Juan Amenábar, who com-

Back cover: Ensemble Karel's vehicles for self-expression, as employed in performance at the Open Ears Festival of Music and Sound in Kitchener, Ontario, Canada. See the review in this issue.

posed electroacoustic pieces from 1953–1976, and who adopted experimental and algorithmic approaches in many of his instrumental works as well. Stephen Pope's essay examines the social, economic, and political implications of digital media, comparing the present enthusiasm for the World Wide Web to the Italian Futurists' zeal about radio earlier in the 20th century.

The final two articles report on software that won prizes in the Third International Music Software Competition at Bourges, France in June 1998. Mike Berry's article describes his program GrainWave, a system for real-time software synthesis and signal processing on the Power Macintosh. GrainWave features an open plug-in architecture that allows users to add their own processing algorithms. Thierry Carron and Dominique Fober present Modularing, a configurable environment of cooperating MIDI applications that employ a striking user interface, patterned after modular analog synthesizers.

Our reviews editor, James Harley, has garnered a sizable collection of event and compact disc reviews from numerous contributors. A new book on using the Max programming environment is also assessed. The issue concludes with a product review and sundry product announcements. We hope readers will enjoy perusing the *Journal* in both the traditional print version and its new electronic counterpart.