About This Issue

Beatriz Ferreyra, an Argentine-born composer who now lives in France, has recently been receiving overdue recognition for her work with Pierre Schaeffer, the *musique concrète* pioneer, as well as for her later compositions. In an interview in this issue of *Computer Music Journal*, Ms. Ferreyra relates some of her personal history and offers advice for young composers who may have little experience with analog tape manipulation. (She has also served as curator for the audio compact disc that will accompany our next issue.)

The first technical article in the current issue elaborates upon work presented in the officially designated best paper of the 13th Colloquium on Musical Informatics (CIM), held in L'Aquila, Italy in September 2000. The authors, Pietro Polotti and Gianpaolo Evangelista, have devised a sound analysis and synthesis technique based on their harmonic-band wavelet transform (HBWT). This transform is able to separate a spectrum's harmonic components from their sidebands, which are adjacent frequency regions that in the case of many musical instruments contain noise or microfluctuations from the theoretically static harmonic component. The authors have observed that these noisy sidebands can be modeled by pseudo-periodic $1/f$-like noise, resulting in the technique they call *fractal additive synthesis*. The goal is to capture the realism of sustained natural sounds, whose timbres are usually neither static nor noise-free.

Continuing a recurring theme from the past few years of *Computer Music Journal*, researchers in Helsinki present a new article on the synthesis of plucked-string sounds. Mikael Laurson and his coauthors have refined a technique for emulating an acoustic guitar, based on physical modeling. Their article covers not only the synthesis model itself, but also expressive real-time control of a PatchWork-based synthesizer implementation.

Henkjan Honing's article sets forth a formal analysis of existing representations of timing and tempo, and proposes some extensions and alternative approaches. Mr. Honing's *timing functions* combine a time-shift function (which handles phenomena such as notes played "behind the beat") with a tempo-change function (which handles variations such as *accelerando*, *ritardando,* and *rubato*). A generalized version of the model encompasses temporal structure, performance-time, score-time, and global tempo. Music software, such as sequencers, that implemented such a representation of time could permit a series of temporal transformations on the same passage without losing the original score's musical information.

The issue's final article proposes a new data structure called a Multiattribute Prediction Suffix Graph (MPSG). The MPSG can be used, among other things, to determine the probability that the next note in a musical sequence will have a given pitch or duration. Such predictive algorithms can be used to compose musical passages or to assess the likelihood of an external musical event (as a hypothetical example, to help a computer accompany an improvised melody). The MPSG is said to have advantages in that it can automatically handle multiple attributes (e.g., pitch and duration) given a sequence of notes, without requiring the user to enter any additional information.

The *Reviews* section of this issue begins with a report on the same CIM conference in which Mr. Polotti and Mr. Evangelista presented their work on wavelet-based additive synthesis, described above. Three other artistic or industry events are reviewed, followed by two book reviews, an assortment of CD reviews, and evaluations of two music software products.

Front cover. As a visual allusion to the topic of fractal additive synthesis, we present this graphic.
Back cover. This diagram shows how the harmonic-band wavelet transform, discussed in this issue, partitions a spectrum in frequency (vertical axis) and time (horizontal axis).