About This Issue

This issue's articles all concern musical applications of audio signal processing. The first two articles deal with composition; the last three with analyzed recordings of performed music. Another commonality worth noting is that three of the articles' titles contain the word "automatic" or "automated." The notion of automated or semi-automated audio analysis shows up in the contents of the other two articles as well. Automation has always been prominent in computer music research, of course. Indeed, it is difficult to identify any sphere of human music-making that is insusceptible to emulation by digital automata, even if in some cases the practice of such emulation is still nascent.

Automated composition by computers hardly represents a nascent case, dating as it does back to the late 1950s. At that time *musique concrète*, with its techniques of collage derived from recordings of natural sounds, had already been established as an art form; and yet the lion's share of the ensuing half-century's effort in algorithmic composition has been devoted instead to note-based music, with its more-conventional materials of pitch and rhythm. The reasons for that slant are several, including technological reasons (e.g., the earlier advent of digital audio synthesis as compared to digital audio recording) and conceptual ones (e.g., the greater ease of characterizing pitches and rhythms as compared to timbres). This issue's

first article, by Nick Collins, seeks to rectify this imbalance in algorithmic composition by investigating how computers might imitate the practices of human composers of acousmatic music (a term that is sometimes used to encompass all music composed for fixed-media playback without performers, but which often refers, as it does here, more specifically to styles procedurally and aesthetically indebted to *musique concrète*).

The second article, by Grégoire Carpentier et al., discusses how composers have availed themselves of the automatic orchestration software named Orchidée. This survey of three composers' work complements the earlier article by Carpentier and colleagues, published in *CMJ* 34:1, on the technological design of that software.

Next, we present two technical articles about systems useful to music students who wish to model their playing on recordings of master musicians. The first of these articles, dealing with intonation, argues for the utility of a digital tuner that does not assume preset frequencies. For certain types of music, such as the traditional Turkish *makam* music used as the case study in the article by Barış Bozkurt, instrument tuning is quite variable and in any case does not adhere to theoretical constructs. Instead of predefined frequencies, therefore, the system contains carefully looped samples of pitches played by a master musician. The user

tunes an instrument to those audio exemplars, aided by a visual display.

The second of these technical articles concerns automatic annotation of violin music. Whereas the article by Cordelia Hall and John O'Donnell in the previous issue of *CMJ* investigated computer-assisted annotation of violin bowing, Akira Maezawa et al.'s article examines violin fingering. Unlike some prior researchers in this area, the authors derive the fingering from audio recordings, analyzing the spectral characteristics to ascertain on which string each pitch was played, and combining that information with a model of ergonomic fingering.

The final article, by Lorenzo Tardón et al., presents a technique for visualization of music collections. Various researchers have studied how to represent collections of "songs" (i.e., audio recordings, typically of popular music) in a multidimensional space. The authors of the current article contribute to this field with their method for nonlinearly projecting cepstral-coefficient signatures of a set of songs onto a space whose axes correspond to genres.

The issue continues with three CD reviews, two of which were written by our reviews editor, Ross Feller. One of the reviewed discs is by a Turkish composer, the other two by Americans. Rounding out the issue are its opening and closing sections: News, edited by Rebecca Fiebrink, and Products of Interest, edited by Margaret Cahill.

Front cover. *Old Man* by composer and artist Kyong Mee Choi. Acrylic on canvas, reproduced here in grayscale.

Back cover. In this figure from the article by Lorenzo J. Tardón et al., a collection of musical pieces is plotted as points in a space whose three dimensions each signify a different genre.