

Reviews

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Events

International Computer Music Conference 2002

Göteborg University, and Chalmers University of Technology, Göteborg, Sweden, 16–21 September 2002

*Reviewed by Bob Sturm
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The 2002 International Computer Music Conference (ICMC2002) was held in Göteborg, Sweden, jointly organized and hosted by the School of Music and Music Education at Göteborg University and the Chalmers University of Technology. Göteborg is the second largest city in Sweden and is known as the manufacturing center of Volvo automobiles and Ericsson cellular phones. ICMC2002 was overall a successful conference run by a very professional and experienced group. Much respect should be accorded the general coordinator, Magnus Eldénus, and his efficient staff for accepting, organizing, and deploying such a large, difficult project as ICMC2002. Furthermore, Göteborg University provided an excellent location for the event, with all the technology required to successfully host this "hyper-technological" event.

The chosen theme for ICMC2002 was "Voices of Nature." Mr. Eldénus asked in his introduction: "What

is the border between nature and art? Nature is present in one way or another in most of today's computer music activities—explicitly as in physical modeling, psychoacoustics, evolutionary algorithms, or implicitly as a foundation for the physical laws that govern most human activities. And, of course, as an artistic inspiration for many composers." This theme is exciting, but unfortunately there were only a few papers and pieces that directly dealt with it.

ICMC2002 didn't have any poster sessions; only papers, demos, and, of course, concerts. Of 193 submitted papers, 121 were accepted, so parallel sessions were necessary to fit everything into five days. (Thus I must make the obligatory statement that I cannot do justice to giving a complete review of the ICMC2002 papers since that would violate fundamental laws of physics!)

Groups and institutions that had three or more papers and demos at ICMC2002 were numerous. These include the Center for Computer Research in Music and Acoustics (CCRMA); Institut de Recherche et Coordination Acoustique/Musique (IRCAM); The Department of Information Engineering (DEI) and the Center of Computational Study (CSC) of the University of Padova, Italy; Massachusetts Institute of Technology (MIT) Media Lab; NTT Communication Science Research Lab; Carnegie Mellon University (CMU); Virginia Center for Computer Music; Sony Computer Science Laboratory in Paris; and the University of California at San Diego (UCSD). These groups cover a broad range of specialties in current computer music research from physical modeling to musical controllers, machine listening, and signal description.

This year's Swets & Zeitlinger Distinguished Paper Award went to

François Pachet (Sony Computer Science Laboratory) for his paper entitled "The Continuator: Music Interaction with Style." Mr. Pachet demonstrated his program, which aims to create a stylistically consistent music imitation system that is also musically interactive. The title refers to the system's ability to take a player's musical input and continue in a stylistically similar way. His demonstration at the conference provided a fulfilling and amusing look at this creative solution to making imitative music systems interactive. Several images, movies, and the software are available online (www.csl.sony.fr/~pachet).

Machine listening was a popular cognitive topic this year. Roger Dannenberg (CMU) demonstrated a program that implements machine listening which produces a high-level analysis and "explanation" of an input piece of music, such as John Coltrane's *Naima* or the Christmas Carol *We Three Kings*. Kenji Suzuki et al. from Waseda University, Japan, presented their first step in creating an autonomous music performance system: an algorithm with the ability to create its own musical sensibility by listening to several raw audio signals. Other papers tackled onset detection using neural networks, quantifying melodic similarity, and improving score following.

Physical modeling of the Tibetan singing bowl was also a popular topic this year. Georg Essl and Perry Cook of Princeton, and Stefania Serafin et al. (CCRMA) presented results that use banded waveguides. Mr. Essl has expanded his model to incorporate the glass harmonica, and Ms. Serafin et al. expanded their model to the musical saw.

One of the most interesting presentations came from a collaboration between physical modeling and ethnomusicology; the paper was "Use of

Physical-Model Synthesis for Developing Experimental Techniques in Ethnomusicology—The Case of the Ouldémé Flute” by Patricio de la Cuadra (CCMRA), and Christophe Vergez and René Causse (IRCAM). The Ouldémé is a Northern Cameroon tribe that plays complex rhythms and melodies using bamboo flutes that are closed on one end, similar to single pieces of a pan-pipe. Each player in a group of five plays only two pipes and sings when breathing in. Mr. Cuadra et al. have constructed a physical model in Max/MSP that is controlled by imitation flutes with sensors. A video was shown of five Ouldémé musicians at IRCAM playing the flutes with a precision and feel close to using actual instruments. This exciting study is helping ethnomusicologists understand Ouldémé playing techniques and tuning.

The subject of music controllers made its display at ICMC2002. Controllers based on existing instruments were presented for the violin, saxophone, and a Zydeco washboard. Diana Young from the MIT Media Lab presented her hyperbow controller, which tracks bow velocities, position of the string, and bow strain. Matthew Burtner, of the Virginia Center for Computer Music at the University of Virginia, presented his Metasaxophone, which is a saxophone retrofitted with several sensors and an on-board computer that creates MIDI output. Carr Wilkerson from CCRMA demonstrated a performance interface to Serafin’s Tibetan bowl physical model using his Zydeco washboard called the “Mutha rubboard.” More information can be found online (www-ccrma.stanford.edu/~carrlane/mutha/muthahome.html).

Other controllers were not based on any real music instruments. Dan Overholt of the Center for Research

in Electronic Art Technology (CREATE) at the University of California, Santa Barbara, demonstrated his “Multipurpose Array of Tactile Rods for Interactive eXpression,” or the MATRIX. It looks similar to the “pinpression” toy which makes Reimann sums of hands and faces using pins (there is no easy way to describe this). More information on the MATRIX can also be found online (xenia.media.mit.edu/~dano/matrix/). Charles Nichols of CCRMA gave a video presentation of his vBow project: a haptic music controller with four degrees of freedom. When finished, the vBow will be able to be used to realistically control a physical model of a violin. And, from the Interaction Design Centre at the University of Limerick, Ireland, a new controller was presented called the Pressure Sensitive Hybrid (PuSH) Sensor. The goal of this project is to capture and use the unspoken gestures of a musician that are visually significant. One scenario is the use of the sensors to detect the changing weight distribution of a Bodhrán (traditional Irish frame drum) player.

Mark Feldmeier, Joseph A. Paradiso, and Mateusz Malinowski of the MIT Media Lab presented another interesting use of sensors. They have created low-cost wireless motion sensors to distribute among a large crowd of dancing people. The sensors simply detect an impact motion, such as a stomping foot or hammering arm, and transmit an anonymous pulse to a music generator. The music is then sequenced and output live at a tempo which corresponds to the crowd’s overall pulse.

Software—new, old, and updated—is essential to any conference on computer music. From CCRMA, Gary Scavone presented *RtAudio*, his cross-platform real-time audio I/O application programming interface written in C++, which implements

both blocking and callback methods. This project has developed from his and Perry Cook’s Synthesis Toolkit (STK). *RtAudio* can be downloaded with extensive documentation (www-ccrma.stanford.edu/~gary/rtaudio/). StochGran, a Cmix-based granular synthesis composition application, has been ported to Mac OS X by Mara Helmuth, and a new version of *RTMix* by Ivica Ico Bukvic, a Linux-platform real-time performance and composition interface, is available. Both can be downloaded from the University of Cincinnati (meowing.ccm.uc.edu/softmus.htm).

A highly unique software offering is “Planet CCRMA at Home,” which provides an operating system built on RedHat Linux as well as a variety of useful sound programs. Fernando Lopez-Lezcano, lecturer and system administrator at CCRMA, has created this free, easy-to-install package that uses a low latency kernel for audio applications. Exhaustive information and how-to instructions are available online (www-ccrma.stanford.edu/planetccrma/software).

A creative use of SuperCollider (www.audiosynth.com) was presented by Nick Collins (Middlesex University, UK). His BBCL, or Break Beat Cut Library, allows a user to easily create interesting and dynamic “breaks,” “glitches,” and intelligent dance music, but it also can be used for many other sample editing and remixing purposes. This library, with several examples and compositions, can also be found online (www.sicklincoln.org).

Miller Puckette (UCSD) presented an amusing talk about extending his program pd to facilitate musical synthesis from graphical scores, as in Karlheinz Stockhausen’s *Kontakte*, and Iannis Xenakis’s *Mycenae alpha*. The example presented in the paper

can be found with current versions of pd in the online documentation. More information can be found at the pd homepage (www.crca.ucsd.edu/~msp/software.html). Roger Dannenberg gave a lecture on his new interactive audio and music language, Serpent, which is an extension of his previous C++ music programming language, Aura. His goal is a compromise between functional programming—useful for signal processing—and object-oriented programming—useful for event-driven music. More information on Serpent and Aura can be obtained from his Web site (www-2.cs.cmu.edu/~rbd/).

Perhaps the only papers that were related to the “voices of nature” theme were Bob L. Sturm’s sonification of ocean buoy spectral data (www.composerscientist.com/), Eduardo Reck Miranda’s “On Making Music with Computer Models of Nature,” and Rajmil Fischman’s presentation of using solutions to Schrödinger’s equation for musical generation. The lack of content related to the theme of the conference was disappointing.

A certain frustration with past ICMC paper submission procedures has been noted on several occasions. This year, instead of reviewing abstracts the organizers decided to review complete papers. This certainly increased the quality of the accepted papers, but there were still too many papers accepted that were irrelevant, redundant, or unoriginal. There are also classes of papers that need no presentation, such as studio reports. If these papers and presentations would be removed, or perhaps placed in a poster category, parallel sessions would be unnecessary. This would make the conference more appealing and much less fatiguing.

ICMC is an academic hydra with heads concerned with synthesis

methods, perception and cognition, physical modeling, composition, sound programming, haptics and interactivity, and music content and classification. It is associated with so many different parts of the computer music community that it can’t represent any one adequately enough. It would perhaps be in everyone’s best interest to limit the ICMC to a single-track conference, with papers and pieces that reflect original and refreshing work in all these fields. The ICMC could serve as an archive of this research; the event and the proceedings should create a rich resource for sharing, distributing, and documenting the status of the field. Each proceedings can provide a platform from which we can *proceed*; and each volume can be a guidebook for students looking for where interesting research is occurring.

Kudos are due to Mr. Eldénus and his capable and resourceful staff for hosting a quite successful ICMC. Many wishes for a speedy recovery!

First International Conference on Musical Application Using XML

Laboratory for Musical Informatics (LIM), Milan, Italy, 19–20 September 2002

*Reviewed by Denis Baggi
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MAX2002, the First International Conference on Musical Application using XML, took place in Milan, Italy, at the seat of the Laboratory for Musical Informatics (LIM) on September 19 and 20, 2002. Although open to the public, it was not a typical conference in the sense that it was dedicated to a very specific topic

Figure 1. Goffredo Haus, conference chair.



and it sought to attract contributions that should materialize in actual work for the definition of a new standard for using XML.

After the introduction by host Goffredo Haus (see Figure 1), director of LIM and Professor of Computer Science in the Department of Information Sciences (DSI) at the State University of Milan, Denis Baggi explained the two main aspects of this project. First, there is the procedure of the Standards Activity Board (SAB) of the Institute of Electrical and Electronics Engineers (IEEE), the largest professional society of people active in the field (www.ieee.org). A subset dedicated to Computer Science is the Computer Society (CS), comprising about 100,000 members (www.computer.org). In September 2001, the SAB accepted a Project Authorization Request (PAR1599) for the establishment of a standard for the encoding, delivery, and reproduction of music, symbolic and sub-symbolic, via Web, DVD, and CD-ROM, to obviate the inherent deficiencies of existing de facto standards. These are either incomplete