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## About This Issue

Francis Dhomont (b. 1926) represents a rare breed of composer, one whose career stretches from the earliest years of *musique concrète* to the present. He started composing *musique concrète* as a young man in France in the 1940s, and still continues to create new works every year, having completed some 50 pieces over the last three decades. This issue of *Computer Music Journal* begins with an interview with Mr. Dhomont, whose profound influence manifests itself in what has come to be known as the Montreal school of acousmatic music. About half of the interview traces his biography. He worked in near-isolation until the 1970s, when he became more connected with the mainstream of musical activity in France. Moving to Montreal in the late 1970s, he taught composition, electroacoustic techniques, and acoustic perception, with an orientation toward French acousmatic music and the writings of Pierre Schaeffer. The remainder of the interview focuses on his approach to composition. Regarding extramusical influences, he says, "music is for me the language that I use to speak of aspects of being." We thank Rosemary Mountain for conducting this interview in honor of Francis Dhomont's 80th birthday.

The rest of the articles in this issue cover interesting but unrelated topics. Cynthia Bruyns's article introduces a technique for modal synthesis of struck objects, such as percussion instruments. In contrast to the subtractive-synthesis percussion model described in the previous issue of *Computer Music Journal*, Ms. Bruyns uses physical modeling, in a form that permits emulating objects of unusual shape. A finite-element representation is used to describe the motion of the object under forces. After the system is decomposed into its resonant frequencies, the object model is made available for real-time sound rendering. A 3-D geometric interface allows the user to control the object's material and size, and to modify, via MIDI, the intensity and location of the strike. A demonstration will appear on the DVD accompanying the next issue.

Computer musicians are frequently concerned with realistic simulation of the sound of a traditional musical instrument, but we less often hear about realistic simulation of how the instrument feels when one plays it. Roberto Oboe's article in this issue extends the efforts of a very few earlier researchers at constructing an "active" keyboard controller, i.e., one in which digitally controlled

motors press back on the key to simulate the feel of, say, a grand piano action. In Mr. Oboe's system, the hardware costs are below US\$ 10 per key, making commercial production of a full keyboard feasible. He has used his device to emulate, in order of decreasing complexity, the grand piano and harpsichord actions and the simple, spring-like action of a Hammond organ. Experimental results indicate that the device accurately reproduces the behavior of the original instrument.

The article by Gretchen Foley and Charles Cusack describes their computer program that assists in the theoretical analysis of music by George Perle (b. 1915). The authors introduce the fundamentals of this prominent American composer's "twelve-tone tonality," a mathematical approach to composition based on cycles of intervals. They then explain why attempting to analyze this music manually is necessarily arduous. Finally, they show how the music theorist would use their tool to reverse-engineer George Perle's musical constructions. The software could also benefit other composers working within the framework of Mr. Perle's twelve-tone tonality.

An important problem domain in music information retrieval involves

*Front cover.* Francis Dhomont in 2001. (Photo by Florence Gonot.)

*Back cover.* A screen image from Cynthia Bruyns's synthesis software.

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characterizing and comparing melodic passages. Researchers have tackled the problem using various techniques, often based on string-matching algorithms or on geometrical representations. The latter approach is taken by Greg Aloupis and his co-authors. Melodies are described by connected line segments, which in the basic form of the technique are rectilinear, resembling a city skyline. However, an extension to the technique handles the nonrectilinear case of sliding pitches, such as glissandi and bends, which occur frequently in real-world audio sig-

nals. In an added twist, the melodies can be cyclic, as in certain African and Asian musics, in effect placing the corresponding geometrical patterns on a cylinder rather than a plane. Optional time-scaling allows melodies to be compared that have different tempi (or rhythmic augmentation and diminution). The authors present several melodic-comparison algorithms and analyze their computational complexity.

Four books are reviewed in this issue, including three that transport the reader back to the 1950s. The book by Paul Doornbusch expands

upon his article in the Spring 2004 issue of the *Journal*, concerning what was likely the earliest computer to produce music. Another book examines Lejaren Hiller's pioneering work in algorithmic composition, and the third analyzes in depth the first all-electronic soundtrack to a major commercial motion picture (the 1956 science-fiction film *Forbidden Planet*). Also reviewed are a DVD, two CDs, a computer music festival that highlighted vocal music, and a long-awaited Macintosh version of the Composers' Desktop Project software.

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# Announcements

## L'Espace du Son

The thirteenth annual international festival of acousmatic music, *L'Espace du Son*, will take place in Brussels, Belgium, on 19–22 October. The concert series is hosted by Musiques et Recherches, and is the occasion for the presentation of finalists and the announcement of winners of two competitions, one in the live spatialization of acousmatic works, the other in composition. The series will also include a concert paying homage to Francis Dhomont, who celebrates his 80th birthday this year. (See the interview in this issue.)

Web: [www.musiques-recherches.be](http://www.musiques-recherches.be).

## Seoul Computer Music Conference

The Korean Electroacoustic Music Society will host the 2006 Seoul International Computer Music Festival (SICMF) 23–25 November at the Seoul Arts Center in Korea. Submission categories include tape music, electroacoustic music with instruments, live electroacoustic music, and audiovisual media art. Twenty pieces selected from over 100 submissions will be chosen for performance during the conference.

Web: [www.computermusic.or.kr/main\\_en](http://www.computermusic.or.kr/main_en).

## Electroacoustic Music Festival in Chile

The Electroacoustic Community of Chile will host *Ai-maako*, the sixth edition of their annual electroacoustic music festival on 10–21 October 2006. Celebrating 50 years of electroacoustic music in Chile, the festival

will present an international selection of acousmatic and “mixed” (electronic with instrumental) music.

Web: [www.cech.cl](http://www.cech.cl).

## Pushing the Medium

The Portuguese artist-run cultural organization Binaural Media will host *Pushing the Medium*, an international meeting of sound, video, and media artists in Nodar, Portugal, on 14–25 September 2006. The theme of the symposium is “Place,” and the landscape, villages, mountains, and valleys around Nodar will serve as both the topic for workshops and discussions, as well as primary material for artists to use in realizing work during the ten-day event.

Web: [www.binauralmedia.org/projects/ptm2.html](http://www.binauralmedia.org/projects/ptm2.html).

## World Forum for Acoustic Ecology

The World Forum for Acoustic Ecology (WFAE 2006) will be held in Hiroasaki, Japan, on 2–6 November 2006. The forum will be presented by the Japanese Association for Sound Ecology and Hiroasaki University International Music Center, and is supported by the World Forum for Acoustic Ecology and Soundscape Association of Japan. The opening symposium at the forum is titled “The West Meets the East: Physical, Spiritual, and Postcolonial Perspectives of Acoustic Ecology.” Other activities include lectures, discussions, audiovisual presentations, and a two-day listening tour in areas surrounding Hiroasaki.

Web: [www.saj.gr.jp/en/hirosaki/WFAE2006.html](http://www.saj.gr.jp/en/hirosaki/WFAE2006.html).

## An Ear to the Earth

An Ear to the Earth: A Festival of Music, Sound, and Ecology will take place across several venues in New York City on 6–14 October 2006. The idea behind the festival is the recognition that the interaction with our natural and human-created environments is a crucial issue of our time, and has inspired an enormous body of sonic artwork. The festival will include concerts, installations, encounters, and soundwalks by artists including Hildegard Westerkapmp, Barry Truax, Maggi Payne, Cécile Le Prado, and Jean-Claude Risset. Joel Chadabe will present a world premier of a new interactive work using material from New York and New Delhi. David Rothenberg will present *Why Birds Sing*. There will be a sound installation, *Sound Map of the Danube River*, by Annea Lockwood, and Laurie Spiegel will present her work *Ferals* based on a prominent part of the New York City soundscape, pigeons.

An Ear to the Earth was conceived by Electronic Music Foundation, and organized in collaboration with the UNESCO DigiArts Portal, World Forum for Acoustic Ecology, New York City Audubon, New York University Music Technology Program, New York Society for Acoustic Ecology, The Acoustic Ecology Institute, and Leonardo/ISAST.

Web: [www.earthtotheearth.org](http://www.earthtotheearth.org).

## Seventh International Conference on Music Information Retrieval

The seventh International Conference on Music Information Retrieval (ISMIR '06) will be held in Victoria, Canada, on 8–12 October 2006. ISMIR

Figure 1. John Grzinich engaged in “field recording” at *Pushing the Medium #1* in Mooste, Estonia. *Pushing the Medium #2* will be held in Nodar, Portugal.



is an international forum for work on accessing digital musical material, addressing the issues and possibilities that arise now that so much musical material is available on-line. The conference targets the interests of researchers, developers, educators, librarians, students, and companies. The 2006 Music Information Retrieval Evaluation eXchange (MIREX '06) is a contest to compare state-of-the-art MIR algorithms that will take place as part of ISMIR. The number of specific domain categories is growing, and this year may include audio drum detection, music similarity, genre classification, melody extraction, melody transcription, onset detection, tempo extraction, singer identification, key finding, and score following.

Web: [ismir2006.ismir.net](http://ismir2006.ismir.net), and [www.music-ir.org/mirex2006/index.php](http://www.music-ir.org/mirex2006/index.php).

### ACM Multimedia Conference

The annual Association for Computing Machinery Multimedia Conference (ACM MM 2006) will be held in Santa Barbara, California, on 8–12 October 2006, and will include several activities of interest to the computer music community. For the third year in a row, the conference will include an Interactive Arts Program that is composed of both a conference paper track and an Art and Technology Exhibition, in which computational audio has become an important part. The conference will also host a workshop on multimedia information retrieval.

Web: [www.mmdb.ece.ucsb.edu/acmmm06](http://www.mmdb.ece.ucsb.edu/acmmm06).

### Electronic Music at Gaudeamus

The International Gaudeamus Music Week will take place in Amsterdam

on 3–10 September 2006. The festival is designed to provide young composers with opportunity and exposure. As part of the festival, compositions nominated for the Gaudeamus Prize will be premiered. The categories of music for the prize include Chamber Orchestra, Chamber Music, and Electronic Music. The nominees in Electronic music that will have their compositions performed at this year's event are Wolfgang Delnui for *Zeithände* (2004–2006), Dganit Elyakim for *Lentils* (2005–2006), Cenk Ergün for *Video Igin dörtlü agiliş* (2004), Michiel Mensingh for *A glitch in the matrix* (2005), Jeff Myers for *Buzz* (2005), and Gabriel Paiuk for *Res Extensa* (2005).

Web: [www.gaudeamus.nl](http://www.gaudeamus.nl).

### New Journal of Mathematics and Music

The Taylor and Francis Group publishers have announced the publication of a new periodical, the *Journal of Mathematics and Music*. The scope is to include mathematical and computational approaches to music theory, analysis, and composition. In recognition of unsolved ontological and epistemological issues in music, the journal is open to a wide variety of methodologies and topics. Each of the three annual issues will be devoted to a single topic, and there will be an on-line edition to support sound files, applets, and other electronic media.

Web: [www.tandf.co.uk/journals/titles/17459737.asp](http://www.tandf.co.uk/journals/titles/17459737.asp).

# News

## Australasian Computer Music Conference

The Australasian Computer Music Conference was held 11–13 July 2006 at the Elder Conservatorium of Music, University of Adelaide, Australia. The conference was entitled *Medi(t)ations: Computers, Music and Intermedia*, and sought to highlight new areas of aesthetics and interrelationships in computer music. Topic areas included cross-media relationships and the role of technology, interface and control systems, media as aesthetic agent, psychoacoustics, and connections between computer music and intermedia practices in other areas such as education. Scheduled keynote speakers included Mitchell Whitelaw from the University of Canberra, and Fredrik Olofsson and Nick Collins of the audiovisual performance duo known as *klipp av*.

Web: [www.acmc06.org](http://www.acmc06.org).

## Spark Festival of Electronic Music and Art

The fourth annual Spark Festival of Electronic Music and Art was held 22–26 February 2006 at the University of Minnesota School of Music in Minneapolis, Minnesota, USA. Douglas Geers directed the festival, which featured artists such as Alvin Lucier, Scanner (Robin Rimbaud), Randy Jones, and Ben Nevile. The festival included 15 concerts, 5 paper sessions, and featured lectures. Special sessions were offered on topics such as the work of the featured artists, the inner workings of net recording labels, and *Max/MSP/Jitter*.

Web: [spark.cla.umn.edu/index2.html](http://spark.cla.umn.edu/index2.html).

## Sound and Music Computing

The third Sound and Music Computing (SMC '06) was held 18–20 May 2006 in Marseille, France. The conference was supervised by organizations from France, Italy, and Germany, and aimed to promote exchanges between European countries around the conference theme. This year, the conference put special emphasis on research involving image and video such as music representation and visualization, image-based control of sound and music, multimedia performance systems and languages, and multimodal perception and cognition.

Web: [www.gmem.org/smc06](http://www.gmem.org/smc06).

## Connectivity in Connecticut

The tenth biennial Ammerman Center for the Arts and Technology Symposium, *Connectivity*, was held 30 March–1 April 2006 at Connecticut College, New London, Connecticut, USA. The events included keynote speeches, multimedia performances, interactive installations, a gallery opening, and concerts, many free and open to the public. International artists, composers, theorists, and scientists attended the symposium. Three collaborative teams consisting of visual artists, composers, dancers, and computer scientists were awarded commissions and residencies to create works that were produced with the help of Connecticut College students and premiered at the symposium.

The events included a keynote address and a multimedia performance by Massachusetts Institute of Technology (MIT) composer Todd Machover, and a performance of *Perceivable Bodies* using projection and motion-sensing technology by

Palindrome Intermedia Performance Group of Germany (see Figure 1).

Web: [aspen.conncoll.edu/news/2416.cfm](http://aspen.conncoll.edu/news/2416.cfm).

## Subtropics Experimental Music and Sound Arts Festival

The Subtropics Experimental Music and Sound Arts Festival celebrated their 18th year with a series of concerts and events in Miami, Florida, on 23 February–4 March 2006. Headquartered at the Dorsch Gallery with hosting and presentation spread among several Miami and Miami Beach arts organizations, the festival included simultaneous performance of David Dunn's *In Air, In Water, In Trees and Three Strange Attractors*, *Music on a Long Thin Wire* by Alvin Lucier, and the experimental opera entitled *I* by Gino Robair.

Web: [www.subtropics.org](http://www.subtropics.org).

## Gem-Days

The Music Department at the University of Huddersfield, UK, presented *Gem-Days*, a six-day festival of electronic music and mixed media, on 23–28 March 2006. The festival included the Gmebaphone loudspeaker orchestra pioneers Christian Clozier and Françoise Barrière, as well as music from Robert Normandeau, Pierre Alexandre Tremblay, Phil Niblock, and Jean Piché.

The festival was also the occasion for a conference on the use of *Max/MSP* in composition, improvisation, and performance.

Web: [www.gemdays.co.uk](http://www.gemdays.co.uk).

Figure 1. *Palindrome Inter-media Performance Group of Germany performed at the Connecticut College Art and Technology Symposium.* (Image by Freider Weiss.)



### Sonoimágenes

The seventh edition of the International Acousmatic and Multimedia Festival, *Sonoimágenes*, was scheduled to be held 22–25 August, 2006, at the National University of Lanús and other concert halls in Buenos Aires, Argentina. The festival is organized around three categories of presentation—acousmatic work, audiovisual compositions, and live performance and includes workshops and presentations.

Web: [www.sonoimagenes.netfirms.com](http://www.sonoimagenes.netfirms.com).

### Deep Wireless in Toronto

New Adventures in Sound Art presented the annual Deep Wireless Festival 1–31 May 2006 in Toronto, Canada. The festival is a month-long celebration of radio and transmission art, performances, sound

installations, new commissions, CD launches, and conference activities. Conference speakers and workshop leaders included Trevor Wishart, Steve Wadhams, and Tetsuo Kogawa.

Web: [www.soundtravels.ca/deepwireless](http://www.soundtravels.ca/deepwireless).

### Pierre Schaeffer Competition Winners

The winners of the 2005 Pierre Schaeffer International Computer Music Competition have been announced. In the category of Tape Music, the first prize was taken by Francis Dhomont for *Here and There*. The second prize winner was Robert Sazdom for *Bogorodica*, and the third prize winner was Roeland Luyten for *Decycklage*.

For the category of Instruments and Tape, no first or second prize was awarded. The third prize in the cate-

gory was given to Omar Dodaro for the piece *Dialogue in Nature*.

Web: [www.accademiamusicalepescarese.it/html/risultati\\_2005.html](http://www.accademiamusicalepescarese.it/html/risultati_2005.html).

### Short Cuts: Beauty

As part of the 2006 World New Music Festival organized by the International Society for Contemporary Music, the Center for Art and Media (ZKM) in Karlsruhe, Germany, hosted Short Cuts: Beauty, an international competition for electroacoustic music. Targeting musically creative people of all ages, ZKM solicited short pieces, each based on three sounds representing the artist's concept of beauty, and presented all submissions during the course of the Festival, on 14–30 July 2006. Special audio stations at ZKM and the festival's media center in Stuttgart were established, and the Museum of Art in Stuttgart opened a late-night lounge to present selected submissions.

Web: [www.wnmf2006.de/short\\_cuts\\_e.php](http://www.wnmf2006.de/short_cuts_e.php).

### American Composers Orchestra Goes Underground

The American Composers Orchestra concert named "Tech & Techno" extended their "Underground" series to explore the intersection of technology and new music with influences drawn from the dance club and the computer music lab. Programs on 17 March at Zankel Hall at Carnegie Hall in NYC, and on 18 March at the Annenberg Center for the Performing Arts in Philadelphia featured Neil Rolnick's *iFiddle Concerto*, the multimedia work *Call Them All: Fantasy*



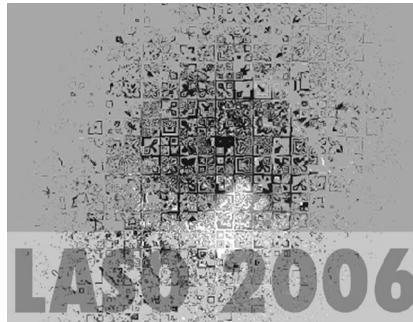
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*Projections for Film, Laptop, and Orchestra* by Daniel Bernard Roumain (DBR), *Omnivorous Furniture* by Mason Bates, *Practice* by Edmund Campion, and *Abandon* by Justin Messina.

Web: [www.americancomposers.org/rel20060317.htm](http://www.americancomposers.org/rel20060317.htm).

### Los Angeles Sonic Odyssey

The Los Angeles Sonic Odyssey (LASO) presented a series of three concerts 31 March–1 April 2006 featuring electronic and computer concert music. A diverse line-up of composers included David Cope, Curtis Roads, Patricio da Silva, Richard Karpen, Jennifer Logan, Sylvia Pengilly, Pete Stollery, and others. The works covered a range of styles including acousmatic music, microsound compositions, environmental music, virtual instruments,



sonic documentaries, drama, horror, and humor.

Web: [spectrumpress.com/newmusic](http://spectrumpress.com/newmusic).

### Xenakis: La Légende d'Eer

A multimedia piece that Iannis Xenakis created for the occasion of the opening of the Georges-Pompidou

center in Paris, *La Légende D'Eer*, has been documented by filmmaker Bruno Rastoin (2004). The film was shown at the Anthology Film Archives in New York on 2–3 March, as well as in Canada 10 June at the Perimeter Institute for Theoretical Physics in Waterloo and 11 June 2006 at the Ontario College of Art and Design.

The film is made from 350 slides Rastoin shot at the original event performed by Xenakis that included a seven-channel sound system, 1,680 lights, four lasers, and 400 mirrors in a building of his own design. The sound for the New York showings of the film was mixed live by Xenakis's associate Gerard Pape from the original master tapes.

Web: [www.americancomposers.org/rel20060317.htm](http://www.americancomposers.org/rel20060317.htm).