Events

Two Reviews of the 1998 International Computer Music Conference

University of Michigan, Ann Arbor, Michigan, USA, 1–6 October 1998

Reviewed by Guy E. Garnett

Urbana, Illinois, USA

Sitting down to write this soon after it ended, and still dizzied from eleven concerts and many paper sessions in just six days, I will try to give a taste and synopsis of what I think was most interesting, amusing, challenging, or even inspiring at the 1998 International Computer Music Conference (ICMC). But it won’t be easy.

First, an overview: ICMC ’98 was held at the University of Michigan in Ann Arbor, a quintessential American college town, one of the biggest and best of its breed—meaning that cafes and brew pubs abound, yet, come Friday night, it is still nearly impossible to find one with space to take you and your party of 30 ICMC-ers. But we did manage upon a few occasions.

In such a welter of presentations, it is possible to bring out only the highlights, but one can also note trends as perceived by the reviewer, who has been going to these conferences since 1984. Some of the newest technologies have to do with the World Wide Web, and particularly with the Web-oriented programming language Java, as might have been predicted from observing the computer scene outside of music. Much of the work here might be described as belonging to the comparatively uninteresting category of software ports. Still, the impact of Web-based accessibility may bring new benefits by reaching new audiences, composers, and performers, and perhaps by facilitating greater communication and interchange within an expanding community, the latter being just why Conseil Européen pour la Recherche Nucléaire (CERN) developed the Web in the first place. In this context, I would mention some of the Java-based programs that are springing up. Among these are synthesis programs (Phil Burk’s Jsyn for real-time synthesis, and of course, IRCAM’s latest FTS “front end,” jMAX—more on this later), and some intriguing developments in notation programs. Thanks to the ubiquity and cross-platform aspects of Java, notation programs seem to be at a threshold for unifying tools across many platforms and many user communities, something that has been notably lacking until now. Of these efforts, the Web-based approach taken by Kai Renz and Holger Hoos in their Salieri program, which builds on Guido, appears extremely promising. It will be particularly interesting once the Java implementation they are working on is completed.

Another important development is the arrival en masse of cheap hardware/software systems that can synthesize and process sounds on the fly. These are represented in such works as MSP and jMax, but also in a number of others. For example, Miller Puckette, in his wonderfully casual style, presented the programs “bonk” and “fiddle.” The first of these programs does percussion-onset recognition, and can distinguish attacks from several different percussion instruments after simple training. The second is a pitch tracker, the principal benefit of which seems to be that it, like bonk, runs on a variety of platforms: Macintosh, Windows, Silicon Graphics, and Linux. Similarly, in more ways than one, the Cort and Zack show (Cort Lippe and Zack Settel, also known as the Convolution Brothers) also made use of cheap machines for rather sophisticated live processing of sounds. To call it a presentation rather than a show would be too inadequate a description of their chaotic, though mostly amusing, antics.

One worry in the current situation is the perception, at least among several conference attendees, of a new battle between users of jMAX (with its institutional support at IRCAM) and MSP (with its greater accessibility, at least potentially). A reasonable approach might be for these groups to work toward some level of compatibility so users are not faced once again with mutually exclusive choices and the concomitant, inexorable fragmentation of effort and community.

In a category nearly by itself is the proposal by Adrian Freed for using AES/EBU digital audio standard to communicate large amounts of gestural control data. This is another promising idea that perhaps some manufacturer will capitalize on to provide cheap hardware. It could help the struggling community of real-time interactive-performance interests (which was nearly invisible at the ICMC concerts, but I will discuss that more below).

One of my own interests is in conducting-recognition systems. I was pleased to see this is still a viable subject, with at least three projects represented, though one presenter unfortunately did not show up for his presentation. Satoshi Usa’s system seems to take into account a number of elements not previously dealt with, especially in the realm of eye contact. Teresa Marrin gave an excellent and snappy talk about her data-collection system that records information on a variety of physiological aspects of...
conductors—aspects that have not been studied much to date, ranging from muscle tension to breathing—and their correlation with musical gestures.

There were, of course, many more papers presented, as well as demos and posters; this review’s selection has been guided by my predilections and interests, not to mention space constraints. Browsing through the entirety of the ICMC Proceedings can give one a taste of the great diversity and wealth of the technology that is being applied in our musical domain. But I would like to turn now to an all-too-brief consideration of some of the music and its significance.

It seems to me odd that the sub-
ject index of the Proceedings shows a plurality of papers on topics such as real-time systems, interactive-performance systems, and audio signal processing, yet the music presented at the concerts was largely made using such old standbys as Csound and other soundfile-manipulation software. I will go out on a limb here—and the reader should feel free to saw it off from under me—but the relative sameness of so many of the pieces may in fact be directly tied to the tools used. Not, of course, that the tools necessarily make composers think in the same ways, yet, since the tools are so constraining, it takes a much greater energy and commitment—and imagination—for composers to overcome those constraints. Of course, traditional music, with its notation, performance, training [species counterpoint, etc.], and social existence, has some of the same problems. But given an experimentalist tradition that has led to so many diverse possible ways of making music—from musique concrète, to synthesis, to live processing, to computer-aided composition, in short, all of the tools that are currently available for making music in the computer music community and beyond—one would think that the actual music would be extremely diverse. It was not. Why is this? Of the many possible reasons, I will mention only one here, leaving for a future, more appropriate, forum a more thoroughgoing response.

It may seem odd to see tradition at all in such a recent art form as computer music, but it seems to me that it is in fact because of the recency of the field that its traditions are already so overwhelming. In a nutshell, because we as a community are still perpetually new to our media, we are forced even more to rely on the beaten path. This is not a good thing.

In the belief that a greater noise will be made by many voices each raised in its own subjective passions than by a single voice that attempts to summon the multiple muses in a supposedly objective overview, I will limit this review to those pieces that most excited me, in whatever way.

Richard Karpen’s Mass is a tape piece with a real sense of humor, by a composer with an ability to play with meanings in a number of dimensions at once. It begins with richly textured sounds—personal ones, I would say—and seems to develop gradually as an ordinary but interestingly well-shaped and well-crafted piece. But then it rushes suddenly, or at least it gives one that feeling, into the bleating of sheep in a long coda that comments on the form of electroacoustic composition, on the nature of artistic unity (whatever that still might mean), and also on an ambivalence toward the subject matter. It is the Mass with a capital M, or the quantity of mass translated into musical qualities, that feels so satisfyingly and humorously out of balance in a piece whose center of gravity is wildly skewed by the longish, heavy opening, which is opposed to the light, airy, less-massive coda.

Paul Koonce’s Walkabout is available on the ICMC ’98 compact disc, which the reader is advised to hear. The medium of tape music has its clichés, its weaknesses. It is rare to find a piece that works within these clichés and yet makes more out of them, transcending their ordinariness and yet retaining the inherent interest that led them to become clichés in the first instance. Mr. Koonce handles this situation as well as anyone in the field. It seems to me that his success comes about by not being satisfied with just constructing, however carefully and beautifully, the sounds themselves, but by way of careful, intelligent thought beyond these qualities into the relationships between the different sounds, and then by finding or inventing ways to richly organize and construe those relationships and present them to the listener.

William Albright’s Sphaera, a beautiful, elegant work, left us all feeling most poignantly the recent death of the composer.

Eric Chasalow’s Left to His Own Devices, a tape collage of sorts, presented an interesting portrait/commentary on Milton Babbitt, his music and thought, and his rich sonorous voice. This notion of taking an existing body of works, in this case those of Mr. Babbitt, and subjecting them to the same processing as has been traditionally used for transforming concrete sounds, seems to have become more popular. It was also taken up by another composer, Mikell Kuehn.

Mr. Kuehn’s Music through Prisms is a very rich tape piece with a most interesting potential for musical reward. The sound sources for
the piece are, in this case, taken from Mr. Kuehn’s previous works, some of which were for acoustic instruments and some for electronics. This already gives such a wide range of possibilities that it is a miracle it could be pulled off so well. I was fascinated, not only by the immediate context of the music that was presented, but also by the sense of a kind of background continuity, or affinity between sounds, that could not quite be grasped and yet seemed so coherent. Perhaps this is indicative of what might be called the “composer’s voice.”

Another unusual approach to tape materials can be found in Rasmus Bruse Lunding’s Det Nodvendige, The Necessity. This is a curious, strongly shaped piece made with humor and great skill. In particular, the use of a clear singing voice when we had been led to believe it would be the usual chorusing drones made a startling and exciting juxtaposition. The ending with its neo-primitivist drumming also played with genre and expectation while simultaneously fulfilling musical needs for dynamic shape and nuance.

A large number of pieces fell easily into the category of a more traditional musique concrète. One of the best was Nodal by Horacio Vaggione, who is one of the truly great masters of the genre. Mr. Vaggione’s work was a highlight of the conference: strong sounds were excellently and variously spatialized, and the piece exhibited an ability to maintain several ideas and continuities simultaneously while still giving a dramatic sense of context and continuity. In a word: music.

In contrast to this monument of tape music, there were several, though not many, works for electronics and live performers. Of these, I would mention Wayne Siegel’s extremely effectively performed Match I, for percussion and computer, with Danish percussionist Thomas Sandberg. This is a work in which the computer responds to the performer according to various rules for “accompanying.”

Seunghyun Yun’s The Halo was another of the few pieces for instruments and live electronics heard at this ICMC. Simple, well-thought-out electronics helped the solo guitar spread out spatially and change timbre more definitively than it would alone. The sense of continuity between the guitar and the electronics was reminiscent of a Synchronism by Mario Davidovsky (such as No. 10, for guitar and tape), yet the aesthetic was rather different—more relaxed and delicate.

A slight variation on the technique of live electronics is the combination of prerecorded electronics with live instrumental performance. This proved, to this listener, to be one of the richest sources of interesting music in this conference. I will briefly mention just a few of the works I found most impressive.

Edmund Campion’s Losing Touch for vibraphone and tape is not interactive, but its tape sounds were created largely from recorded and analyzed vibraphone sounds. Though this helped to create the possibility of timbral continuity between tape and live instrument, it is in the musical shaping of the piece that most of its interest lies. Mr. Campion has a wonderful sense of how to move slowly through the materials without losing direction.

The next work combined precreted electronics with a live instrumental ensemble of percussion, double bass, and alto flute: the remarkably subtle Microclimate I: Snow and Instability by the young Natasha Barrett. Her work was commissioned for this conference by the ICMA. In contrast to Mr. Campion, Ms. Barrett works in a decidedly European aesthetic, one in which the sound world, by its projection of angst, even at the level of the struggle to produce coherent tones, is imbued with a fragile, even hesitant, intensity that imparts tremendous character to the music.

Another work in this genre might be mentioned: Christopher Cook’s Bluescape for piano and tape. Probably the most remarkable—at least the most memorable—aspect of the piece was the stunningly energetic, right-on-top-of-it performance by Mary Hellmann, and the excellent coordination and synchronization with the tape part.

I will turn to just one more work, though several others should have at least honorable mentions. Sean Varah’s Slipping Image, for flute, violin, cello, percussion, and tape is a restrained piece, though that very restraint comes through as one of its greatest strengths. In a time when it is all too easy to have the widest possible contrasts of gesture, sound, reference, or whatever, it takes a very different, strong mind and a solid imagination to keep the focus tightly controlled and yet make the music interesting and even exciting. This work, too, is available on the ICMC CD. I encourage you to give it a good concentrated listening. You will be well rewarded.

So, all in all, it was not a bad year. If I had to voice one general reservation, it would be that such an overwhelming number of works came from the USA that the conference began to seem a bit too parochial. I would urge those making the choices to be broader, rather than narrower, especially when the conference is held in the USA—if for no other reason than to allow American composers and technologists to see and hear a wider range of aesthetic approaches to making music.
with technology. Maybe such an opportunity will be presented by the 1999 conference in Beijing.

Reviewed by Camille Goudeseune
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The ICMC returned to the USA this year. Conference Chair Mary Simoni and her team worked hard, and it showed: a short review cannot begin to describe the profusion of composition and research that was presented in a single week, as seminars, installations, papers, and concerts.

Seminars at the conference branched out into other fields of technology: multimedia composition, virtual reality, and mixing for new digital formats like DVD and 5.1 surround sound. This was quite convenient for those of us who cannot make it to the Audio Engineering Society conventions. The week-long exhibition of early electronic instruments organized by John Monforte was a pleasant surprise. Participants could actually play on a Theremin, Mellotron (complete with a hastily sketched introduction to Strawberry Fields Forever), modular Moog (mostly in tune), Synclavier with original (20-year-old) 8-in floppies, and a LinnDrum. Several people remarked how difficult the Theremin was to play, having no tactile feedback, but one performer familiar with virtual-reality (VR) interfaces found it enjoyable light: it captured her hands’ gestures without a need to hold heavy devices. The Moog reminded us how nice it is to have the whole interface visible at a glance, not buried in submenus and preferences panels.

Several installations running for the duration of the conference were well attended, despite their being located some miles from the main conference. In the University of Michigan’s new CAVE VR theater, Insook Choi presented a new composition, Unfolding Time in Manifold, which showcased eight-speaker localized sounds as well as the authoring tools used to compose the piece. Down the hall, Seve Tipei and Hans Kaper of Argonne National Labs showed a class of compositions, A.N.L.-folds, and examples of data sonification using an Immersadesk display. Several other interactive installations, some with performers included, some with the audience as performers, were located back at the main campus.

The usual large assembly of papers on analysis and synthesis techniques was presented, bracketed with other sessions on accompaniment systems, expressiveness and control signals, and real-time issues.

Eli Brandt presented experimental results measuring the latency of various operating systems. Silicon Graphics’ Irix remains the best at 7 msec; Windows 95 and NT trail at around 150 msec, but Windows 98 may get 30-msec performance with the new WDM programming technique. This reviewer unveiled a new platform (for more information, see the Web at http://www.shout.net/~mhamman/Areal/) for controlling C++ synthesis algorithms in real time on generic PCs. The paper by Bernd Schoner and his colleagues of the MIT Media Lab was distinguished with an award for introducing a novel synthesis technique midway between sampling and traditional physical modeling. His team trained a neural net with gestural inputs and corresponding spectral envelopes of a violin, using cluster-weighted modeling to implicitly encode the nonlinear correspondences between these inputs and outputs. After this training, they reproduced good acoustic output from new inputs within the trained range.

In the paper session on compositional systems, Michael Hamman distinguished conventional symbolic from semiotic ways of thinking in user interfaces for composition tools, encouraging surprises to occur at the interface instead of polishing the interface to the point that it disappears from the composer’s awareness. Michael Gogin presented Music Graphs, an elegant music formalism implemented in Java, analogous to scene graphs in computer graphics. Stéphane Letz and his colleagues presented the current state of their Elody system, showing a nice separation of form (pattern templates) and content (pitches and rhythms) in a manner reminiscent of John Cage’s early piano works. As a finale, they cleverly constructed Dave Brubeck’s Blue Rondo A La Turk as Heinrich Schenker might have done it. This session finished with the Salieri music language and composition system (presented by Holger Hoos). Its approach lies midway between that of Elody and adding musical/temporal primitives to existing programming languages, as it is itself a general-purpose programming language. As a conventional text-based language it is thorough; its forthcoming graphical user interface and many connections to other systems promise it a long life. Insook Choi rounded off the paper sessions by presenting the VR authoring tool ScoreGraph, used in her compositions at recent ICMCs. It lets the composer describe various processes, their connections and synchronization, and how their internal state is visually and acoustically rendered.

On the second day of the conference, The Michigan Daily featured the ICMC in its cover story, which took a populist angle, quoting Mary
Simoni: “The music presented at ICMC ’98 represents the most experimental edge of what is known in contemporary parlance as techno.” The article also quoted Papers Coordinator Gregory Wakefield: “A lot of the big performers like Kraftwerk owe a lot of aesthetics and technology to our movement.” Three aspects of techno were indeed common in the almost 100 compositions performed: static tonality, pulsed rhythms, and imaginative use of timbre.

William Alves’s video piece, Collateral Damage, used fragments of Gulf War news-broadcast footage as raw material. Looping and superposition of these fragments created basic harmonic fields that shifted suddenly at articulation points. Larry Polansky’s work for tape and singer, choir/empí’s solo, took the opposite approach, shifting harmonies slowly and unpredictably, threatening banality and then avoiding it just when one’s attention started to wander. But many tape pieces using pitched sounds did not consider harmony a problem at all: they simply established a tonic (or center) and never strayed from it.

Granular synthesis was featured in many of the tape pieces presented. (It seemed curiously fashionable this year, much like motion capture at SIGGRAPH.) The grain streams were often regularly pulsed (around 10 Hz), which became tiresome in uninterrupted half-hour doses. Presumably, some of these composers intended such a steady beat to be maintained for 10 min at a time, but surely not all of them! Elizabeth Hoffman’s Vim refreshingly demonstrated an awareness of the situation, inflecting the stream with subtle ritenuitos and irregularities. Have the rest of us forgotten the Poisson distribution which Iannis Xenakis introduced many years ago? A perhaps subtler trend also showed up in many of the pieces performed: equating exposition with composition. In commercial techno, exposition of new technology is often the necessary aesthetic; development of material only gets in the way. But if this becomes a style in the ICMA community, The Michigan Daily will be disappointed! This expository technique often revealed itself in a gradual introduction of sounds which then just kept on sounding: effective if the beat is strong and the venue allows for dancing, but soporific after four days sitting in a comfortable darkened concert hall. Jerry
Tabor’s tape piece, *engaging Caus- eys*, stands as one example opposing this simple aesthetic, using chaos theory as a structural principle of orchestration.

All the pieces in the concert given by the University of Michigan Percussion Ensemble combined percussion and tape to good effect. Some amplified the performers’ capacity with sounds related to or derived from the performed part (Wayne Siegel’s *Match I*, Jon Christopher Nelson’s *Other Terrains*); some accompanied or led the percussionists with not-quite-identifiable timbres (even the instrumental sounds had that same pleasantly mysterious quality in Natasha Barrett’s commission *Microclimate I: Snow and Instability*). Elizabeth Anderson’s *L’eveil*, for tape, also demonstrated imaginative—dare we say beautiful?—use of sounds. Sean Varah’s *Slipping Image*, for four instruments and tape, powerfully executed what he calls “the sleight of hand game of ‘is it live or is it Memorex.’”

The human voice, always a powerful spice, was processed beyond intelligibility by most composers, but Rasmus Lunding pulled off clearly enunciated text (in Danish—I wished for a translation!) and even sung melody in *Det Nødvendige*. These last two works are also on the conference compact disc, the latter in a slightly shorter version.

Tape music reigned this year: three-fifths of the pieces were for tape alone (see Figure 1). Another fifth added conventional instruments (see Figure 2). One-tenth had dancers, video, or other nonacoustic elements, and only a tiny fraction used live electronics. (An even smaller fraction used no electronics at all in performance.) Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance. Certainly, DAT cassettes are more portable and reliable than computers and controllers (or instrumentalists!), but less than a dozen compositions used no electronics at all in performance.

processing techniques on the violin (pitch clusters, Jean Michel Jarre-like flanging, intricate doubled melodies) were mirrored in composed-out effects in the ensemble. Gregory Dannenberg also presented a processed soloist, but without other instruments, in *One Divided*. Short movements featured various expansions of a single trumpet via the Lexicon 300’s effects processing, the result being imaginative and surprisingly interesting. Roger Dannenberg’s *In Transit*, for trumpeter (himself), computer soundtrack, and Scott Draves’s computer animation, impressively demonstrated the style-recognition and improvisation software he presented last year as a paper, proving that accompaniment systems are maturing.

The dance pieces were particularly impressive. As just one example, Diane Thome’s *Unfold/Entwine*, choreographed by Jessica Fogel, intricately recombined nine dancers into various groups and roles, the music corresponding (not too literally!) with a variety of gestures and flow of energy to and fro (See Figure 3). Recurrent gestures in both dance and music gently hinted at large-scale structure. And if not literally dance, Barry Truax’s *Androgyny*, *Mon Amour* was certainly theater; it received a stunning performance by bassist Robert Black. In all the evening concerts, Mark Allen Berg’s lighting design was consistently imaginative and polished, going perhaps too far only on two tape pieces where four patterned spotlights spun and flew around the stage. Some liked it; those of us who had spent four hours at an alternative/industrial dance club the previous evening obviously found it tame. But, overall, he handled the visual problem of tape music quite gracefully.

The ICMC concert series is always a valuable and unique opportu-
nity to hear a wide range of computer music, and this year was no exception. The papers set a new standard for polish and professionalism, to say nothing of their deep content. Computer music’s future looks promising, to judge from the range of fascinating activity demonstrated this year in Ann Arbor. We hope to have caught up on most of it before the 1999 conference at Tsinghua University, Beijing (for information see the Web site at http://www.cs.ust.hk/icmc99/).

Digital Audio Effects 1998, Barcelona, Spain


Reviewed by Davide Rocchesso
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and
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The first of a planned series of European COST-G6 workshops on digital audio effects (DAFX) was held in the beautiful city of Barcelona in November 1998. COST is an intergovernmental cooperation initiative aimed at coordinating nationally funded research efforts. A COST action on digital audio effects (see the Web at http://www.iua.upf.es/COSTG6/), chaired by Daniel Arfib (see Figure 4), was started in the fall of 1997 and has supported the organization of DAFX98.

Hosted by Xavier Serra of the Audiovisual Institute of the Pompeu Fabra University, the DAFX98 workshop brought together an interesting blend of musicians, multimedia artists, scientists, and engineers for a dialog about the state of the art in digital audio processing. The facilities of the Pompeu Fabra University were superb. The hall chosen for the workshop was adjacent to the Reflection Hall, a place of reflection and meditation which was commissioned to the world-renowned Catalonian artist Antoni Tapies only three years ago.

No less than 56 presentations were scheduled over the 4 days of the workshop. The main topics included filtering, delay, modulation, audio coding, spatialization, software-development strategies, and spectral processing. The workshop also allowed poster sessions, installed demonstration systems, book stands, and product stands. The effort it takes to solicit these peripheral services is well appreciated. An excellent 285-page proceedings volume was distributed at the opening of the workshop. The papers are available online at the conference Web site, http://www.iua.upf.es/dafx98.

The first set of presentations dealt with filtering, modulations, and delays. It was interesting to have mixed perspectives on these topics, as they were given by researchers from universities and multimedia industries, as well as by musicians. Classical subjects such as reverbation and chorusing were touched upon, and the speakers faced often-neglected aspects such as compensation of nonlinearities and shaping of the reverbation decay.

A very intense afternoon was spent on presentations on sound spatialization. Virtually all facets of the topic were addressed by some of the contributions, including the design of head-related transfer functions, recreation of virtual acoustics, rendering via sets of loudspeakers, and design of knowledge-based interfaces for controlling existing spatializers.

The sessions on spectral processing and time-frequency scaling occupied the most conspicuous section of the workshop, as one might easily expect since the conference chairman, Xavier Serra, is the main author of the well-known spectral modeling synthesis (SMS) program, and his group is one of the most active in this field. Several presentations were related to sinusoidal representations of sounds and how to improve aspects such as frequency estimation, feature extraction, and robustness to time- and frequency-scale modifications. Much attention was drawn to the definition, extraction, and manipulation of high-level attributes derived from spectral models, especially within the framework of expressive modeling of musical material.

Three presentations were dedicated to different aspects of audio coding, with special focus on the popular MPEG standards. It was clear how the interest of the audio-coding community is drifting from
perception-based compression of raw material to structured descriptions of algorithms for sound generation and modification, with the perspective of dealing with content-based models in the near future.

Several presentations were dedicated to software systems. Most of them were descriptions of software tools, which can be useful to music composers and sound designers. However, a couple of presentations raised general software issues that should be considered when designing and sharing audio effects.

A useful feature was a final session that compared the architectures of several signal processing chips by E-Mu, Motorola, Texas Instruments, Analog Devices, and AT&T. Two independent speakers gave in-depth comparisons of different processors and architectures, while a third talk discussed issues of very-low-cost DSP chips for the mass multimedia market.

Other presentations do not fit perfectly into any of the categories listed so far, as they touched miscellaneous topics. Some of them were surveys reporting years of research and experience in audio processing from outstanding centers, scientists, and composers. Surely, this conference provided the approximately 130 participants a consistent common framework based on past scattered experiences, so that it will be easier to push the research toward further achievements to be presented at the forthcoming DAFX events.

The participation of companies and publishers with their own stands and delegates reflects a general interest in the topic of digital audio effects, such that future initiatives similar to DAFX98 are definitely encouraged.

The workshop included two concerts with works by Curtis Roads, Eduard Resina, Jean-Claude Risset, Teruyoshi Kamiya, Joan Sanmartí, and Jorge Sad. Curtis Roads’s new piece Half-life was synthesized from sound particles generated through pulsar synthesis. The material was further processed through what seemed like several generations of granulation, resulting in structures of small sound atoms organized according to different principles. The work was organized in three parts with a variety of expression forms, ranging from pointilism to rhythmic structures and broad layers of intertwining textures.

Eduard Resina’s Menstruació, completed the day before the concert, combined original Catalan written material, performed by the singer/actress Nina, with computer-processed transformations of voice fragments recorded from her interpretation of the text. The distinct sexual flavor of the text was well presented to the audience by Nina, who made excellent use of her stage props: including a toilet bowl and an inflatable human-size doll.

The work was packed with symbolic intent, and the descriptions of the conflicts and ambiguities in the relationship between the sexes came to a high point with the generous application of ketchup, which was immediately followed by the humorous twist of mopping the stage.

Teruyoshi Kamiya was responsible for the work Dance of Stone, written during 1997 and 1998. The music consisted for the most part of sounds inspired by the legend concerning the musician Kui, who lived in China during the Shun dynasty. In addition to the tape music, three dancers were part of the performance, which appeared somewhat lacking in clarity of intention and correlation in the choreography.

Jean-Claude Risset’s work Invisible, composed in 1994, was for soprano and tape. Mr. Risset’s masterful use of computer music tools makes for an extremely well-balanced timbral blend of synthesized sounds, processed samples, and live singing voice, which was performed by Pilar Jurado. Compositionally, the piece revolves around illusory and immaterial processes in imagined space, inspired by Italo Calvino’s well-known text Le città Invisible. The placement of the acoustic soprano voice in a number of different spaces with virtual (artificial) acoustics made for a play with absence and presence of recognizable elements in the music, and consequently both the timbral and musical expectations of the audience.

The musical prelude to the workshop banquet consisted of two works, both employing live electronics and acoustic instruments. Xtrapolación from 1988, written and performed by Joan Sanmartí, was a carefully crafted piece for electric guitar and computer. The piece was clearly jazz-oriented and was kept strictly within bounds, although the tonal language leaned toward an art-music approach. The performance was excellent, and the piece was enthusiastically received.

The second piece of that program was El doble (No. 1) by Argentinean Jorge Sad, for the bandoneon (an Argentinean accordion) and electronics. Enrique Martin Entenza played the accordion, filling the quiet and sparsingly composed work with a music that was often unstated, but still heard. As a composer, Mr. Sad knows his material, and exactly up to which point he can take it before the lift becomes too small; this piece balanced daringly on the narrowest edge.

Events
International Computer Music Festival

Kobe, Japan, 18–20 September 1998

Reviewed by Emmanuelle Loubet
Osaka, Japan

On the artificial island across from Kobe, the International Computer Music Festival (ICMF) took place in September 1998, an event spread over three days. Xebec Hall is one of the rare places in Japan to offer a program of new music, with a strong point being sound installations, sound art, etc. Each year, the event attracts artists from around the world. The ICMF, on the other hand, took place this year for the first time. This festival replaced the annual Kobe International Contemporary Music Festival, and was a co-production of Xebec Hall and composer Kazuo Uehara, president of the Japanese Computer Music Association (JACOM).

The programming was quite wide-ranging: two concerts of works by Japanese composers, centered around members of JACOM and composers of the Kansai region (Kobe-Kyoto-Osaka) with a few additional guests; two concerts of works chosen by a Franco-Japanese jury, a concert of Korean works organized by the Korean Society for Electro-Acoustic Music (KEAMS), a performance by Sensorband; and finally, a production of Xebec Hall and the Korean Society for Electronic Music (KEAMS); a performance by Sensorband (Edwin Van De Heide, Zbigniew Karkowski, and Atau Tanaka). The producers nonetheless tried to make an effort to enlarge the JACOM/Kansai group by inviting Tamami Tono, Yoshihiro Kanno, and Atau Tanaka from Tokyo, but this effort was still too weak for a festival claiming to be international. The apparent network of relationships underlying the program is a problem not so much with the organizers of this festival as with the cultural life of Japan: there does not exist, to my knowledge, any communication channels (newspapers, journals, Internet lists, broadcasts, etc.) that is freely accessible to artists, technologists, critics, or others—whatever their membership in this or that group—that reaches all of Japan. Every attempt to create such a channel quickly becomes transformed into a private tool centered around one influential personality and the network of people surrounding that person. The organization of the ICMF suffered greatly from this deficiency, and one can only hope that the future will provide opportunities to improve this situation.

For reasons of space, I have chosen to comment on only the Asian works, which in any case were grouped in a rather simplistic fashion in concerts intersecting little with the “international” events. This does nothing to take away from the interest of the works not discussed, and I would like to emphasize the value of GRM’s workshops and concerts (the third day), which gave the Japanese public a unique chance to experience a total acousmatic environment (with an orchestra of loudspeakers, even if the original equipment from GRM did not make the trip to Japan, in spite of the announcement in the program). Nor does it take away from the sensational performance of Sensorband (Edwin Van De Heide, Zbigniew Karkowski, and Atau Tanaka).

Here we are, then, at the inaugural concert, consisting exclusively of Japanese, or Japan-based, works. Pont de l’Alma de Paris, Version 2.0 (1997), by Kazuo Uehara (1949, Osaka), opened the festival: sounds of the Parisian metro, voices of women, and scraps of French television constitute the concrete elements that the composer took to celebrate the anniversary of musique concrète. A transformation of these elements into abstract electronic sounds is rapidly interrupted by recordings of a quartet in serial style. According to the composer, “I composed this piece to express the impression of contemporary art in Paris, especially the art of Fernand Léger.” It was difficult to discern any sincerity vis-à-vis the so-called musique concrète, or the effect of any particular expression, seeming like nothing more than a cultural collage trying, for better or worse, to give sense to the Parisian anniversaries celebrated by the festival.

The second work was the live audiovisual poem, Life and Play (sic, two parts) by Shigenobu Nakamura (1950, Osaka) for electronic sound and video. Built upon a foundation...
of humorous graphic animations, *Life* presents loops of *concrete* sounds and their electronic transformations—children’s voices, rhythmic collages, citations of Baroque music and Bunraku theater (the Japanese puppet theatre)—that parade across the audience’s field of perception. The composer conceived this part as a perceptual aquarium. *Play* is an amusing play on the sound and movement of animated ball graphics. *Life* and *Play* is an entertaining work, reflecting the composer’s long experience with music theatre and the graphic arts, though one senses the conditioning of the artist by the accessibility of the tools and the commercial development of the software.

*Rail* (1996), by Atau Tanaka, a member of Sensorband, came next. The sounds and images were controlled by the gestures of the performer using Max and custom graphic software, MidiKaleido, developed by Eric Wenger. Graphic noise corresponding to the synthesizer’s sounds was projected on a black and white screen, evolving from a simple wave to a noisy spectrum. The work would have been better appreciated in one of the numerous clubs of Osaka or Kobe that is greedy for live noise bands and supersaturated decibel levels (here terribly distorted, a problem found throughout the festival).

This “noise performance” was followed by a “voice performance,” that of Bulgarian composer Boyko Stoyanov, a longtime resident of Japan. Titled *Martian*, this rather aleatoric piece was made up of labial noises, sounds of toys, and synthesizer embellishments, with occasional interesting fluctuations in the musical texture. Mr. Stoyanov seemed well suited to the role of exotic animal that is conferred upon foreigners that are resident in Japan (though perhaps I am mistaken?), performing in a simian disguise that combined Indian sandals, shorts printed with the American flag, and on his forehead, something like the emblem of the Yamabushi sect. In spite of an undisguised opportunism, he exhibited a sense of timing, humor, and theater.

Coming next, with no apparent connection, was a work by composer Ikue Furitsu, *Aoi no Ue*, an episode of the “Tales of Genji,” adapted by, among others, the Kanzei school of Noh theater. This piece could perhaps be a reminder of the early *musique concrète* piece of the same title by Toshiro Mayuzumi from 1957. The actress Yuko Furusawa, dancer of the traditional Jutamai style, played the role of Lady Rokujo, draped in a sumptuous kimono and masked with the face of the horned demon, two stage elements similar to those found in Noh theater, but in fact used in traditional dance. While it is difficult to incorporate elements of the Japanese tradition, it appears that Ms. Furitsu has been honest in her search for expression, research she has pursued for years, particularly in her collaborations with the Bunraku theater. The utilization of the mask represents, for the composer, the impossibility for a woman of the Japanese upper class of the Heian period to express her emotions; an explanation that Ms. Furitsu, in a short interview before the performance, gave in a tiny voice, avoiding the microphone stretched before her, adding in a surreptitious whisper, “Is it not the same at the present time?” The sonic material of her composition consists of a straightforward recording of the declaimed text (the voice of the deceased Teruya Ueda of the Kanzei school) and treatment using the most ordinary of electronic effects, begging the question of the necessity of advanced technology such as the Kyma system and an SGI computer.

The final work, an installation by Masahiro Miwa (1958, Tokyo), was presented in a studio of Xebec Hall. *Silhouette of Words, or Alleluya based on “A’s” text* (1998) was a collaboration between Mr. Miwa (concept, composition, programming), Hiromitsu Murakami (visual art), Takaji Tokiwa (sound technician), and Shiro Yamamoto (art work), and was produced at the International Academy of Media Arts and Sciences (IAMAS) in Gifu. The installation presented an environment that one could qualify as Japanese: remove your shoes, do not raise your voice; *four zabutons* [Japanese cushions] placed in front of four small translucent lamps and four small synthesizers; and finally, four discrete female performers, in monochrome. A monophonic melody just barely audible, made from simple, sine-like sounds, begins to fill the space in a repetitive manner. Then a second, *etc.* “The four sine waves from four small projectors twist and overlap, and when they combine, actually produce one voice. But the ‘Voice’ can never call a name or become a word. It just wanders in time...” The accumulation of monophonic voices is distantly reminiscent of Klarenz Barlow, with whom Mr. Miwa worked in a close collaboration during his 20 years in Germany. It is a minimal space, but one in which the technique and concept are original. The text that serves as the basis for the piece is an extract of a letter that the “Kobe School Killer” (1997), a 14-year-old boy, sent to a Kobe newspaper before being arrested for having, among other things, dismembered the body of a school friend and deposited his head at the entrance to the school. Mr. Miwa has inaugurated his new ca-

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career in Japan with a work that is neither European nor Japanese, but extremely personal, fresh...and beautiful! The studio audience’s concentrated attention, in spite of the hard floor and the cross-legged seating position, was proof. As for the socio-cultural context of the piece: “This piece is the experimental resolution to questions I have had about sounds, performance, scores, expression, notes, and experience. In creating it, I have utilized the newest technologies available today. However, this technology is being used solely as a means to resolve my questions. While the computer is processing audio data of extremely high quality in real time, it is producing insensitive, loud noises. I tried to make this contradictory characteristic of the computer the object of my work and made it as an important part of the piece. This is a resistance to this world, where every human act is regarded as information or as a symbol in this huge process of symbolization.” Silhouette of Words was the first highlight of the festival, well merited after a disparate program.

The second concert was devoted to Korean composers, this time extremely unified in style—too unified, perhaps. While the Japanese pieces had, for the most part, been composed and produced in Japan, many of the Korean pieces were produced in German or Polish studios. These are studios in which the composer works with a sound engineer (Tonmeister) who alone has access to the technical production of the sounds, and therefore the studios reflect, more or less, the aesthetic and philosophy of northern European electronic music. The choice of works was made by the Korean Electro-Acoustic Music Society (KEAMS), led by Do Noung Lee. A trait common to many of these works is the integration, more natural and assertive than their Japanese counterparts, of traditional elements (the sociocultural context and the relation to tradition, especially if examined on the level of historical international relations, are very different from those observable in Japan), and the predominance of ligneous elements in the sonic material (wood is a symbolic element in the shamanistic universe underlying the South Korean culture).

The first work, by Jong Chul Park, Sansudo—Landscape (1996), belongs to the classic style, with wood and drum sounds underlined by a sort of basso continuo consisting of low-speed concrete instrumental sounds. The sonic material is entirely derived from the sounds of Korean instruments (taegum, a large transverse bamboo flute, kayagum, a 12-stringed zither made of paulownia wood, and ajang, a bowed seven-stringed zither). The second part evolves from a quiet, mysterious ambiance to an electronic whirlwind that once again should have been better controlled in terms of volume. This piece appears to embody elements of the form of Korean solo instrumental improvisation. In general, the dynamic evolution of the Korean works is quite different from the static accumulation common to many of the Japanese works. The second work, also for tape, was Dudri (1996), by Seong Joon Whang, I will discuss only the second, TV Scherzo (1993), for video and electronic sounds. Similar to Life and Play by Shigenobu Nishimura, this piece begins with amusing animations of balls and geometrical forms rebounding between musical staves, animations that also conclude the work. In between, the composer, who is the program supervisor of KBS-FM in Korea, leads us in a scherzo of video clips (from television news), rhythmically chopping the horror of crushed bodies, wars, and heart-rending human separations (I may be mistaken in the details of the events). Simple play on the shock value of images, or critique of the media system? Perhaps something completely different.

While this composer produced some very personal works in the 1980s of calm and intense drama, I see here only a rather opportunistic attempt, in the servile combination of abstract graphics (Robert Darrol) and electronic noises, to try his hand in the world of multimedia.

Next came From Grudge to Exultation (1993), for voice, tape, and computer, by Jin Sub Him, who also performed the vocal improvisations. We again find ligneous elements, combined into a sort of Buddhist-style incantation, along with citations of traditional Korean music. From the sound of the piri, a Korean oboe, emerge synthetic fluctuations of poignant effect, as well as fragments of the Pansori, a solo epic recitation half-declared, half-sung, and accompanied by a two-headed drum. While the personal effort of the composer-performer is remarkable, the accumulation of layers of rainbow-colored synthesizer sounds and the programmatic aspect of the piece raise doubts about the aesthetic taste of the whole.

Of the two pieces by Sung Ho Whang, I will discuss only the second, TV Scherzo (1993), for video and electronic sounds. Similar to Life and Play by Shigenobu Nishimura, this piece begins with amusing animations of balls and geometrical forms rebounding between musical staves, animations that also conclude the work. In between, the composer, who is the program supervisor of KBS-FM in Korea, leads us in a scherzo of video clips (from television news), rhythmically chopping the horror of crushed bodies, wars, and heart-rending human separations (I may be mistaken in the details of the events). Simple play on the shock value of images, or critique of the media system? Perhaps something completely different.

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Finishing the concert was *Sori* (1988–1989), for cello and live electronics, by Do Noun Lee, with Kazutaka Amada on the cello. The music is a forest of loops of reinjection and inharmonics, with an interesting spatialization of cello pizzicati in the low register. One more work for solo instrument and live electronics, well mastered here by the cellist. Evidently, the cello is tuned in perfect fifths according to a frequency ratio of 2:3.

In sum, this was a concert of rather conventional electroacoustic music, presenting few recent works, but welcome for the contributors’ more consequential engagement with the work of composition, and equally for the door it opens to a rapprochement of Korean-Japanese cultural relations.

The third concert was entitled “Computer Meets Gagaku,” a title that would have been more accurate as “Computer Meets Sho.” The *sho* is a mouth organ comprising 15 thin bamboo pipes with metal reeds and two mute pipes. Originally belonging to the Gagaku ensemble, it has seen a revival in Japan over the past 15 years. Performer Mayumi Miyata, among others, has made it into an independent solo instrument, supported by the efforts of composers who have dedicated new works to her.

The first work was by Yoichi Nagashima, *Visional Legend*, for *sho* and live computer music with live graphics. While the *sho* performer, Tamami Tono, was excellent, the processing of the natural sounds of the instrument through the *Kyma* system and a specially programmed DSP did not do justice to the intrinsic beauty of the *sho*. In fact, the gratuitous effects (reverberation, delay, and pitch shifting, primarily), applied to the low register of the *sho* and evolving in several places into a sort of free jazz improvisation, only produced a cheap-sounding electronic interference. It is regrettable that numerous Japanese composers feel obliged to program DSP effects or to utilize expensive systems like the *Kyma* or the ISPW, simply to plaster on effects that could have been better produced by commercial effects units as they are utilized (often in a more innovative way) by rock groups. One must also mention, here again, the exaggerated amplification of sounds that adds nothing to the flood of musical information. As for the graphics, there was nothing more than images of fields and forests, connected in the style of a corporate slide-show presentation or an infomercial.

The second work was a surprise: a tape piece by Jon Appleton, visiting professor at Keio University in Tokyo. *Yamanotesen To Ko* (1997) was irresistibly refreshing in the middle of this second day of electronic displays. The first half contains sounds of Tokyo: the “loop line” (*Yamanote Sen*), the crowd, the vendors, the cheerful voices—sounds which, combined by a composer possessing a sense of humor and some distance from the oppressive Japanese system, restore the listener’s enthusiasm for that first contact with the marvels of the everyday Japanese environment. The second part, which is intended to give the listener an audio escape from the sonic bombardment of the metropolis, is made from recordings of the shakuhachi by Kojiro Umezaki. What remains engraved in my memory, though, is the spirit emanating from the sounds dynamically combining the sonic animal, Tokyo. It is difficult, however, to understand the relation of this piece to the concert’s Gagaku theme.

The third piece was *Sound Collage*, for player piano, pianist, and *sho*, by Hiroshi Nanatsuya. It seems that the *sho* was a hasty addition for this concert, to a piece for player piano and piano from 1992. Quotes from familiar classics and a style of writing taken from European music of the turn of the century: what does this have to do with the *sho*, whose drawn-out sounds do not really go well with the punctuated sounds of Western instruments as they are employed in this piece? Or is it this combination which gives sense to the term “collage” in the title? The costumes, too, as they frequently are in concerts of Japanese contemporary music, were, we could say, a collage of styles of period balls.

The fourth piece, *Le Temps des Miroirs—L’Horizontale du Vent* (1986), was by Ioshihiro Kanno, who was invited from Tokyo. This relatively old piece was a commission from the electronic music studio of NHK for four-channel tape, *ryuteki*, and *sho*. The *ryuteki* is a seven-hole, transverse bamboo flute belonging to the Gagaku ensemble. The piece begins with a background of sustained electronic sounds (on tape), onto which is gradually grafted the sylabic sounds of the instruments. The work is characterized by a pointillistic style that in this performance did not integrate well with the one-dimensional electronic sounds. It is too bad that the composer could not take advantage of the multiple-speaker system installed at Xebec Hall to give a live interpretation to the tape and to inject some dynamism into the spatial movement of the sounds. Mr. Kanno has worked for 15 years with replicas of ancient Japanese instruments reconstructed from examples in the imperial treasury of the Shosoin (Todaiji Temple, Nara, 8th century) under a special program of the National Theatre of Tokyo. For him, as for Tamami Tono, the next com-

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composer, the integration of ancient Japanese instruments is not a gratuitous enterprise, but is based upon long experience and a deep interest for the acoustic possibilities of these instruments. The performance in Kobe, however, though acceptable considering that the performers were students, suffered from the absence of the team of great names that Mr. Kanno usually works with in Tokyo.

The final piece constituted the second highlight of the festival: *Dinergy 2 for Sho and Live Computer* (1997), by Tamami Tono, composer and sho performer. In this impressive work the sho and the electronic sounds fuse to multiply the intrinsic beauty of the original sonic plumes. No clichés, no gratuitousness: at the beginning, a sho solo emanates its woody sound from the four speakers (the utilization of the spatial distribution of sounds was otherwise too rare in the festival), and pointillistic clouds and electronic fluctuations gradually enhance the natural sound. The structure evolves slowly, according to a rhythm controlled by the breath of the performer, up until a contrasting passage of low, repetitive electronic sounds; then the acoustic waves resynthesize themselves around a long gong-like sound, against which the sho disintegrates into a noisy spectrum, followed by short impulses. Incongruous sounds enter and give the sho an unexpected internal life, shaped according to surprising acoustic aspects. The flatly traditional manner of the ending takes away the originality of the piece somewhat, but all the same, it is clear that the composer-performer has a sensitive acoustic mastery over her instrument and the technological means she uses in the work. A festival that would like to be international would have to be worthy of more pieces of this level.

There are two more works to comment upon briefly, taken from the sessions of selected pieces from international submissions by composers resident in Japan. First, there was *Reality Attack N.1* by Eric Lyon, in collaboration with programmer Hisakazu Igarashi, both working at IAMAS. Electronic sounds, techno rhythms, intrusions of *concrete* sounds, humor, and relaxed ambiance: this entertaining piece would have succeeded if one had not known that, for a performance that could have easily been controlled by a single computer and a large-capacity hard disk, the composer utilized “eight independent oscillator banks running on eight individual PCs coordinated over a network with UDP packets.”

The second work was *The Flash of Summer* by Yasuhiro Otani. Mr. Otani’s performance avoided the electronic interference common in other works. He started with soft metallic sounds, resembling gongs, that evolved by industrial rhythms intercut with minor noises, cracklings, snippets of conversations, and whisperings, strongly reminiscent of P16D4, the experimental German rock group from the 1980s. A sonic environment inspired by the everyday, by a familiar space? It is perhaps this work that, indirectly, seems to pay the most honest tribute to the “50 years of musique concrète” that was announced as the subtitle of the festival. But Mr. Otani’s internal temporal logic would have corresponded better to a performance in a “live house.” Once more, badly conceived programming.

To conclude, this was a festival of very uneven quality and marked by an opportunism that functioned at the expense of the content and quality, opportunism unfortunately widespread in Japanese cultural life. Among other problems: the clever utilization of the anniversary date of 50 years of *musique concrète* for international publicity (why not a Japanese anniversary, creating a link with the beginnings of *musique concrète* and electronic music in Japan?); the equally clever inclusion of a Korean concert just at the point that a political and cultural rapprochement between Japan and Korea hit the headlines; the insertion between the main concerts of the performances of selected works from international submissions, in order to be able to describe the festival as “international”; the gratuitous utilization of the term Gagaku as a cultural publicity attraction, and the title of the festival itself, ICMF, taken over (unconsciously?) from the existing event in Kobe, the International Contemporary Music Conference, without really changing the content. All these decisions would have been better understood, or even excusable, if on the one hand, the designation of the festival had been “Kobe Computer Music Festival,” omitting the “International” part, and if on the other hand, the program had been aimed at the national level, clear in its procedure for the selection of works and composers, and open to submissions by Japanese artists or residents of Japan in its entirety, and not only those members of JACOM, the Kansai region, and “friends” belonging to the same network. This would imply setting in place, first of all, a channel for distributing information throughout the domain of new music in all of Japan, and second, a nonpreferential system for the “call for works,” with a selection committee independent of the organization committee. In fact, this festival, which from this point of view is well representative of the current state of culture in Japan, cries out for a democratization of musical life in Japan.

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While this first attempt at an international computer music festival in Japan is a positive step toward greater activity in this domain and a greater international visibility, there is still much to be done—not to add, but to reconsider and rebuild—to put into place an event truly open on the international level, representative of computer music of the organizing country, and attractive of an international audience. After all, it is the attendance of the public and the performers that will decide the internationality of the event, not the label stuck for better or worse onto the title by the organizers. I await the second version of such a festival, thinking with real hope of all the possibilities of restructuring and redefinition available to future organizers and, through them, to the numerous composers and artists living and working in Japan—composers and artists whom it is high time to save from the obvious and devastating withering of the cultural environment.

**Publications**


Reviewed by Warren Burt
Melbourne, Australia

In August 1998, I organized a six-night festival of improvisations, tape music, and sound events for Melbourne’s Theatre of the Ordinary. To select performers, I simply phoned up friends from across the musical spectrum about two months before the event. The surprising thing for me about this small festival was how much use of music technology there was. Of the 27 acts, 18 used interactive technology of some sort. Ten of these involved the use of live computer systems. Further, of the 33 performers, only 5 were currently associated with academic institutions, either as teachers or as graduate students. These facts highlighted for me the transition “computer music” is currently undergoing—into live performance, and out of the academic music subculture.

Now is an interesting time, then, to consider Curtis Roads’s excellent Computer Music Tutorial, a product of an era (late 1980s to early 1990s) which might be the last time “computer music” would have been considered a separate discipline, housed primarily within the academic subculture. Gradually, as technology has gotten cheaper and more powerful, “computer music” has become less exclusive, less the province of college teachers and their students, and more a part of many different contemporary musics. The recent decision of the Prix Ars Electronica jury to widen the scope of work considered in its “computer music” category is one sign of this. So, too, is the criteria for inclusion expressed by the American Composers’ Forum for their Sonic Circuits International Electronic Music Festival: “If you plugged something in to make it, you qualify.”

In this new environment, then, Mr. Roads’s book has to serve a double duty, not only as an introductory textbook for the academies, but also as a source of information for the noninstitutionalized. As I read it, it fulfills both of these functions admirably. In fact, it can be read not just as an introduction to computer music, but as an introduction to just about all aspects of audio engineering as well.

Let me be very clear right at the beginning: I consider this a great book. In most cases it is exemplary in its clarity and simplicity, well organized, enthusiastic in its presentation, a gold mine of information. I have been active in the field of electronic and computer music for 30 years, have occasionally taught it, and have done considerable programming and circuit design, yet I was continually learning new things as I read this book. In fact, there were just so many ideas there that I wanted to explore that I filled many notebook pages with “things to explore in the future.” The reservations I have should therefore be read in the light of my overwhelmingly positive response to the book. Mr. Roads has done a terrific job of pre-
senting an introduction to just about every aspect of the field in existence by 1993, the date the book went to the publishers. The three-year lag between manuscript submission and publication is regrettable, though typical. This explains why topics of current interest, such as real-time digital signal processing and sound synthesis with personal computers, music-making over the Internet, and some newer types of gestural controllers do not appear in the book: they were not in existence when the book went to the editors. That the field has changed a lot since 1993 only shows the need for additional, clearly written books such as this, and maybe, for an update or appendix to this one. Despite the advances, this book is in no sense obsolete—any teacher who uses this book can easily supply current information.

I do have some criticisms, though. The first is practical, and probably out of the author’s control. Physically, the book is too big and too heavy. You cannot easily take it with you on public transport, and you cannot comfortably read it in bed. Where else are you supposed to read it? In fact, while reviewing the book, I made the mistake of putting it in my backpack to read on a 2-hr train journey. I strained several muscles in my back, quite painfully! My example may be extreme, and in retrospect, somewhat humorous, but it does point out the problem of practicality in book design. Second, there are a lot of typographical errors in the book, some coming at points where the arguments being advanced are difficult enough to understand on their own. A new edition of the book could do with a thorough proofreading. More serious than the typographical errors, though, are the problems with illustrations and diagrams. In certain cases, the captions and the diagrams do not agree, or are at variance with the text, or, as in the case of Table 21.2, are referred to in a confusing way, where I expected one type of information from the table, and got another. I noticed this problem on page 860, where state 4 should be state 5, and page 921, where the caption for a photograph of a Yamaha DX7 synthesizer is missing, among several others. At over 1,200 pages, I would expect a few problems of this type, but not that many.

Aside from the above complaints, I mostly think the book is fantastic, in terms of content and organization. It is not designed to be the only source of information. While people may laugh at such a huge book’s being labeled a “tutorial,” the description is accurate: each chapter provides a clear introduction to the area in question. For example, if I were teaching fast Fourier transform (FFT) techniques, I would first have students read the relevant areas out of this book, then I would have them read Trevor Wishart’s Audible Design for a more in-depth look at certain kinds of sound modification. Or, if I were outlining historical context, I would supplement Mr. Roads’s excellent and useful histories of the various instruments and techniques with sections from Joel Chadabe’s Electric Sound.

The chapters on various techniques are written to be mostly self-sufficient. Chapter 10, on basic concepts of signal processing, for example, can be read on its own quite handily. Where information from other chapters is required, there is always a reference to it. The only place where I think this is not the case comes in placing the unit on MIDI toward the end of the book, in Chapter 21. At first, I thought this was an admirable move—de-emphasizing the importance of MIDI, where the world of commercial publishing would have us think it is the most essential part of the field—but as I got farther and farther into the book, the constant reference to Chapter 21 proved a bit wearing. MIDI has so many uses, even peripheral ones (no pun intended), in so many parts of the field, that placing this chapter earlier might have solved some of those problems.

Mr. Roads tries hard, in most cases successfully, to be as nonjudgmental and as stylistically unbiased as possible in the book. A few times, personal biases do sneak in, sometimes clearly intentionally, and I have no problem with these. For example, his pointing out that MIDI was oriented to a “musical dialect” (page 1,010), and that the General MIDI timbres constitute “only a tiny fraction of the timbres possible in computer music” are points that need to be made, and loudly. Sometimes, though, I think his biases sneak in quite unintentionally. These are a little more problematic, as they reveal cultural biases hidden as “objective, scientific truths.” For example, on page 29, the statement that “foldover effects must be avoided if possible” is not a statement of fact, but an opinion which has arisen because of the reproduction-oriented way that digital audio happened to evolve. It would be perfectly possible to conceive of a computer music development where foldover and granulation noise were an integral part of the aesthetic rather than as artifacts to be avoided, and where “clear digital reproduction” was something that was discovered much later, and remained a peripheral side issue. (In fact, a nod in the general direction of the composi-
tional usefulness of “artifacts” and “digital mistakes” in a book like this would have provided a valuable balance to the scientific “precision and perfection” aesthetic that unfortunately pervades much of the computer music subculture. Similarly, on page 879, when Mr. Roads states that “results such as these prove that interesting music has several layers of structure,” or on page 890, where he talks of “macrostructural deficiencies,” or on page 840, where Barry Truax is quoted as talking about “the principal of balance,” these are clearly not statements of fact, but of perceptual preferences on the part of the composers involved. If presented as expressions of personal taste, they would be fine, but at times, it seems as if these are being presented as objective principles. They aren’t. Since it is the observer who creates the work of art (the composer only provides a stimulus, or an occasion, for this to happen), it is quite simple to conceive of an observer who could find great interest and beauty in a work that was vastly "macrostructurally deficient," "unbalanced," and had only one or two relevant "layers of structure." (I can do it. Can’t you?) But for the most part, the open-mindedness with which the book is written is refreshing, and even inspiring. The chapters on synthesis techniques are a joy. Each one clearly shows the how and why of the techniques, allowing those with access to software [such as Synoptic’s Virtual Waves, or Csound, or any one of a dozen other packages] to try things out immediately. And I especially enjoyed his conclusions to each chapter, where he points out both the advantages and the disadvantages of each type of synthesis. Having read so much hyperbole over the years about how each new technique was going to solve all our computer music problems, this sort of no-nonsense evaluation is most welcome. It was also good to see "non-note-oriented" methods of synthesis, such as Herbert Brün’s, Gottfried Koenig’s, and Iannis Xenakis’s programs, described in some detail. As one who has worked with this sort of waveform synthesis for years, I appreciate seeing this area acknowledged.

A number of techniques that had formerly been opaque to me became clear on reading this book. Convolution, the principles of digital filter design, waveshaping, what MIDI "blur" actually is, and the difference between linear and exponential frequency modulation are only a few of the areas in which the clear explanations are most helpful, but which also impart a sense of enthusiasm for exploring the intricacies of these fields. With only the information presented in these chapters, I was able to implement a rudimentary digital filter, convolve the voices of Marilyn Monroe and Humphrey Bogart together, and explore waveshaping well beyond the limits of analog half- and full-wave rectification. Such an abundance of new resources, and so much more pleasant to get the introduction here, rather than in some conference paper filled with rocket-science equations! Likewise, the chapter on digital signal processing was well written and clear. Having played with a single-board microcomputer in the early 1980s, most of the concepts explained here were quite clear to me, even if in today’s implementations they may be several stages of complexity beyond what I had dealt with. And the warning about the development cycle of products was very timely. I did, however, still feel like a bit of an “IBM-orphan” every time there was a list of programs or resources in the book. Serious and resource-rich algorithmic composition programs such as John Dunn’s Kinetic Music Machine, or Russ Kozerski’s Sound Globs, or the many sound-processing resources of the Composers Desktop Project suite of programs did not make it into the list of available programs. This is, however, just a quibble—a book of such massive scope cannot be expected to include everything. The only place where I did not feel this sense of enthusiasm and clarity as much was in the section on algorithmic composition. In all other sections, I felt people would be inspired to try out the techniques as a result of reading about them, but not here. Further, although some of the explanations, such as the section on Markov chains, were up to the usual admirable standard of clarity, others, such as musical grammars, were, in my reading at least, opaque and confusing. As well, while I applaud the sections on such pioneers as Lejaren Hiller, Gottfried Koenig, and even Raymond Scott, I do feel that the strict emphasis on making music with a device called a computer skews the history of algorithmic composition somewhat. Surely, non-computer-generated pieces such as John Cage’s Music of Changes are critical for a consideration of the history of the field. That a work such as this has been mentioned so many times elsewhere may be reason for de-emphasizing it in this, more balanced, attempt at a history, but it should not be left unmentioned. In fact, the section on algorithmic composition would probably benefit from a paragraph showing how the use of computers for algorithmic composition is only one small part of a larger, 20th-century trend in all the arts toward process-oriented methods of creation.

Publications

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In a book with so many resources, it is difficult to keep picking out things to emphasize. Curtis Abbott’s chapter on programming and John Gordon’s chapter on psychoacoustics are extremely valuable. Of course, each of these chapters could easily be expanded into a book on its own (as could any of the others!), but the presentation of information in these chapters constitutes an admirable introduction to each of these fields.

In fact, overall, the no-nonsense, both-feet-on-the-ground, clear approach taken throughout the whole book makes it an invaluable resource. As it exists now, it is great. With some updating, another proofreading, and a different physical format, it will be superb.

Douglas A. Lyon and Hayagriva V. Rao: Java Digital Signal Processing


Reviewed by Michael Gogins New York, New York, USA

Java Digital Signal Processing offers instruction on Java programming in the domain of digital signal and image processing. The level of exposition, with a few exceptions, is on an introductory to intermediate level, both for Java and for signal processing.

Chapter 1 presents the evidently obligatory capsule history of Java, an explanation of the strengths and weaknesses of the language, and an introduction to various programming environments. Chapter 2 discusses the basics of the language. Chapter 3 presents the authors’ framework for graphical user interfaces, and Chapter 5 presents their file utilities. The material in Chapters 3 and 5 could serve as a usable introduction to the graphics and file subsystems of Java for those who already have some experience with object-oriented programming.

Finally, on page 213 (of 428), in Chapter 5, signal processing makes its appearance with a presentation of sampling theory, oscillators, and an oscilloscope application. Chapter 6 proceeds to the discrete and fast Fourier transforms, and the power-density spectrum. The correctness of the Cooley-Tukey algorithm for the fast Fourier transform is proved, and there is a useful demonstration of how to test numerical code in Java. The FFT applications include noise reduction, filtering, and frequency shifting. The mathematical background of the algorithms is presented, but the style of presentation is not as clear or useful for musicians as, say, Ken Steiglitz’s book, A Digital Signal Processing Primer, with Applications to Digital Audio and Computer Music [Menlo Park, California: Addison-Wesley-Longman, 1995], and the material is neither as clearly situated in its mathematical context nor as advanced as Don Morgan’s Numerical Methods for DSP Systems in C [New York: Wiley Computer Publishing, 1997], which includes the fast wavelet transform.

Chapter 7 provides an overview of the Java framework for image processing. Chapter 8 describes some common image formats in detail. Chapter 9 presents the two-dimensional Fourier transform with applications for filtering and producing images, and concludes with an introduction to image geometry and the use of affine transformations to rotate, scale, and shear images. The most interesting and original section of the book appears here, where it shows how to use the symbolic mathematics program, Maple, to generate unrolled, highly optimized Java code for three-dimensional matrix arithmetic, including inversions. It might be possible to use Mathematica or MathCAD to do similar work.

The book comes with a CD-ROM containing DiffCAD, a framework for managing audio- and image-processing applets written for JDK 1.0.2, which demonstrates the concepts in the book. I tried to use Symantec Visual Cafe version 2.5a to build DiffCAD, but I encountered a number of errors in the code, such as classes that remained abstract because they did not implement interfaces on their base classes, which caused the build to fail. It is possible that these problems are related to building with a later version of the language (JDK 1.1). The CD-ROM also contains the HTML lecture notes for a graduate course that were the starting point for writing the book.

I venture to guess many readers of this review have either graduate education or practical experience with DSP coding in C or Fortran, and need to start working in Java. The level of exposition in this book does not advance beyond what such readers will bring to it. For those who know DSP coding but need to learn Java, better books are available. For those who know Java but need a tutorial introduction to digital signal processing, the Ken Steiglitz or Dan Morgan books are better choices. For anyone who needs to start writing real DSP code in Java, I recommend simply buying Dan Morgan’s book and translating the code examples into
Java using one of the publicly available linear algebra packages for Java, such as the Visual Numerics Java Numeric Library (see the Web site at http://www.vni.com/products/wpd/jul/) or the JAMA matrix package from MathWorks and the National Institute of Standards and Technology (at http://math.nist.gov/javanumerics/jama/).

Java Digital Signal Processing would be suitable for students seeking an introduction to Java programming in the context of signal processing. It also might be useful to hobbyists or computer musicians who need a jump-start on a fast, easy-to-program language for playing around with basic concepts of DSP, but the problems with the sample code are discouraging.

Eleanor Selfridge-Field, editor: Beyond MIDI: The Handbook of Musical Codes


Reviewed by Robert Rowe Nijmegen, The Netherlands

Beyond MIDI: The Handbook of Musical Codes is exactly what it says it is. Over 30 codes for music notation, analysis, indexing, and synthesis are succinctly described by contributors well versed in their design and use—in most cases, their authors. The range, depth, and extent of repertoire encoded with these representations is impressive. The Essen Associative Code (EsAC), for example, had been used by 1994 to document a collection of over 14,000 folk songs. The Plaine and Easie Code is in use by the Répertoire Internationale des Sources Musicales (RISM) for encoding the incipits found in a world-wide repertoire of musical scores dating from the period 1600–1800. At the end of 1995, this effort had encoded more than 250,000 musical incipits from around 188,000 pieces.

The text organizes the representations into three large families: sound-related codes (MIDI, Csound, etc.); musical notation codes (DARMS, Score, Nightingale, etc.); and codes for data management and analysis (EsAC, Kern, MuseData, etc.). Additional chapters are grouped as representations of musical patterns and processes, interchange codes, and reflections. Major differences between the codes arise from their primary mode of application. Representations written to deal with notation, for example, must encode a great deal of graphic information that has little to do with the underlying music other than how it is traditionally drawn on a page of score. Representations ultimately meant for sound output include many synthesis parameters that would be largely irrelevant to notation. Beyond MIDI encourages demonstration of their relative strengths, therefore, by having contributors each encode some common examples in their own systems. Further, several sections discuss mechanisms for data interchange, such as between EsAC and Score or between Kern and MuseData.

Besides being a superb reference for such a wide variety of music codes, Beyond MIDI makes a valuable contribution to the issues generally surrounding the field of music representation. Over the years there have been many representations implemented, and many discussions of the necessary features that such codes must include. As a repository of extensive information about what has been done over the last 20 or 30 years, Beyond MIDI offers an opportunity to consider the issues from the bottom up: rather than decide the framework of a general music representation from a theoretical standpoint, one can examine a large corpus of existing codes and see which common characteristics emerge. The framing essays by editor Eleanor Selfridge-Field (Describing Musical Information, and Beyond Codes: Issues in Musical Representation) are particularly valuable in establishing the context for the other contributions. She makes it clear at the outset, however, that she does not see one super-representation rising out of this collection: “Most systems are extensible, but all become cumbersome when they begin to seem like centipedes—with too little core to support a large array of extensions and too few links between extensions to provide an integrated logical foundation for understanding the music as mu-
Each new addition takes the representation further from the object it attempts to simulate and taxes programming effort as well."

I find the title quite nuanced and possibly confusing for many in computer music. Beyond MIDI could well lead one to imagine that this book documents the widely anticipated successor to MIDI. In fact, for many of the codes, the title could well have been Before MIDI. The Plaine and Easie Code of Barry S. Brook and Murray Gould, for example, was first proposed in 1964. While it is true that most of these representations go beyond MIDI in that they make it possible to express more aspects of music than MIDI expresses, it is also the case that none of them is really designed to do what MIDI does: transmit simple and robust musical information between sensors, computers, and synthesizers. It is also not possible, and clearly not a goal of the book, to distill a new and improved MIDI-like transmission scheme from the codes documented here. Particularly given the title, I was left wanting a bit more discussion of how all of this could relate to a way out of the MIDI dead end, such as might have arisen from a more extended presentation of ZIPI.

That said, the text is a very thought-provoking exposition of the realities of implementing music representations. One might despair at the sheer variety and incompatibility of so many different codes. The serious effort that has been dedicated to translation mechanisms is one key to integrating this profusion. Another is the possibility of combining several representations in a single process. David Huron’s Humdrum is a good example of this approach: “Humdrum avoids trying to represent everything within a single scheme. Instead, it encourages the user to break up the representational problem into independent, manageable schemes, which are then coordinated. Each specific representation scheme will establish its own limits. While several representation schemes are predefined in Humdrum, users are free to develop their own schemes, tailored to their specific needs.”

A Handbook of Musical Codes may strike many as the kind of reference that gathers dust until you need to remember the byte sequence of time-signature meta-events in standard MIDI files. It is certainly an invaluable reference, but for anyone interested in music research using computers, it also makes for remarkably gripping reading. It turns out that a focused and unified review of the representations used is an efficient way to summarize and compare over 30 years of music research from all over the world. Beyond MIDI is highly recommended both as a reference and as an engrossing collection of ideas.

David Toop: Ocean of Sound: Aether Talk, Ambient Sound, and Imaginary Worlds


Reviewed by Kim Cascone
Pacifica, California, USA

David Toop, a music journalist, author, and composer-performer whose career has been acutely focused on chronicling contemporary music, has examined emergent genres such as hip-hop, world, and ambient music for nearly 20 years. In his latest work, Ocean of Sound, Mr. Toop explores the arc and evolution of the ambient genre by examining many of the influences it has absorbed during the 20th century. Many of these influences would likely have registered on the radar of most electronic music composers working today. In Ocean of Sound, the author blurs the boundaries of form and content in an oneiric narrative that traces the “opening out of music during the past one hundred years, examining some of the ways in which music has reflected the world back to itself and to its listeners.”

Mr. Toop begins the journey by conjuring the day that Claude Debussy first heard Javanese music at the Paris Exhibition of 1889. He states, “from that point— in my view the beginning of the musical twentieth century—accelerating communications and cultural confrontations became a focal point of musical expression.” He continues
the journey by looking at how our sound environment has mutated over the past century, largely due to distributed media accelerating the migration of global cultures, resulting in newly hybridized musical forms. In the chapter titled Altered States IV: Machine, Mr. Toop ranges from Ryuichi Sakamoto to Erik Satie to Kraftwerk. In the chapter Altered States VI: Nature, the subheadings include: bionics, shamanism, and nature; singing sands; the Orinoco; holy minimalism, and whales; Pauline Oliveros; reverberation; Alvin Lucier; and sound art.

The author weaves an exotic fabric of influence and cross-pollination, and gathers disparate musical genres into one aural frame. He manages to dig down to deeper layers by citing references to works as far flung as Thomas Pynchon’s *Crying of Lot 49*, Mark Rothko’s hovering glow-canses, Gaston Bachelard’s *The Poetics of Space*, and Derek Bailey’s seminal book on the dialogue and vocabulary of improvised music, *Improvisation: Its Nature and Practice in Music*. By bringing other disciplines into the mix, Mr. Toop further identifies how this invisible thread of aesthetics has traveled through many art forms, including literature, architecture, and painting.

If John Cage’s book, *Silence*, opened the door for composers to consider all sound to be possible music, then Ocean of Sound has fully decorated the room beyond that door with ornate and mysterious artifacts and curios from many cultural sources. *Ocean of Sound* is a book that could sit comfortably next to Mr. Cage’s *Silence* in any contemporary composer’s bookshelf.

The double-compact-disc collection of music intended to accompany the book is no less engaging or immersive. Reading the book provides one with an intellectual grasp of the material, but to listen to the music is to lose one’s soul in the very territories that David Toop is charting for us. The careful selection and sequence of material, including tracks by King Tubby, Herbie Hancock, John Cage, Brian Eno, the Beach Boys, and Erik Satie, to name a few of the artists, successfully stimulates an atmospheric resonance in the listener. I found that dipping back into the book while listening to the discs provided a very enjoyable context. The recordings are a wonderful chronicle of the prime organizing principle that Mr. Toop outlines in his book. Together or each alone, the book and CDs provide an important and enlightening experience for anyone wanting a comprehensive documentary of the atmospheric arts of the 20th century. In short, this is highly recommended reading and listening for electronic music composers and armchair enthusiasts alike.

**Bill Purse: The Finale Primer: Mastering the Art of Music Notation with Finale 97**

Paperback, 1998; 245 pages; US$ 22.95; order from Miller Freeman Books, 6600 Silacci Way, Gilroy, California 95020, USA

Reviewed by Alicia Lieu
Santa Barbara, California, USA

*The Finale Primer: Mastering the Art of Music Notation with Finale 97* is an extremely helpful book. It takes the reader step by step through Coda’s notation program Finale Version 3.7 and above, for both Mac OS and Windows platforms. Getting started in Finale can be difficult, because of the large amount of documentation faced by the reader, but *The Finale Primer* makes learning Finale simple.

The directions and illustrations are extremely clear and easy to follow. Each chapter contains a review and exercises for practice. Blank pages at the end of each chapter as well as wide margins in the page layout provide plenty of space for taking notes.

The first chapter covers the basics of computers and navigating through the program, including ways of viewing and saving scores. The second chapter explains the toolbox. The third chapter covers entering notes in “simple entry” mode, basic score editing, and score playback. The fourth chapter explains how to enter notes in the “speedy entry” mode, and includes time-saving shortcuts. Chapter 5, Creating a Lead Sheet, explains how to enter lyrics into the score and how to use the chord tool. Chapter 6 takes the reader through printing the final score, while Chapter 7 covers special guitar notation.

The appendices are excellent references. Especially useful for students who might work on both platforms are those titled Finale and Computer Terminology, and Windows to Mac Keyboard Shortcut Comparison Chart. Also included is a bibliography for further study of music notation, computers and education, and electronic music.

**David M. Howard and James Angus: Acoustics and Psychoacoustics**

1996, 365 pages, US$ 37; indexed; available from Focal Press, Linacre House, Jordan Hill, Oxford OX2 8DP, UK

Reviewed by Arthur Wooten
Kingston, Canada

*Publications*
Acoustics and Psychoacoustics is a new textbook by David M. Howard and James Angus, who teach in the departments of Electronics and Music Technology, respectively, at the University of York, England. Aimed at a broad range of students, both musical and technical, the book “does not avoid the need to have quantitative as well as qualitative descriptions of the various aspects of acoustics.” In other words, the book tries to balance mathematical with nonmathematical material.

The first chapter, Introduction to Sound, is clearly organized. Phenomena such as the inverse square law of sound intensity are presented. It also provides a concise nonmathematical introduction to spectrum analysis. I would point out some notational problems, however. As early as page 4, and then throughout the book, the authors stipulate values in the form 5189 m s⁻¹, which means 5,189 meters per second. Although this notation is standard in recent physics textbooks, it is not familiar to musicians, and should have been explained at the outset. Also on page 4, the authors present Young’s modulus, a quantity representing spring strength, which, we are informed, is given in units of Nm⁻². “N” is never defined; I assume that it refers to the unit of force known as Newtons. An introductory section explaining all the physical units and notational conventions would save a music student quite a bit of bother. Compare, for example, The Acoustical Foundations of Music by John Backus [1969], which devotes an introductory chapter to careful explanations of The Fundamental Physical Quantities.

Chapter 2 presents human hearing mechanisms, including the topics of critical bands, frequency and pressure-sensitivity ranges, hearing loss, and perception of source direction, among other topics.

Chapter 3 presents basic topics such as fundamental frequency, harmonics, pitch perception, the co-nundrum of consonance and dissonance, and tuning. In a paragraph on “hearing notes,” the authors point out that “Musical taste is always evolving with time; what one composer is experimenting with may well become part of established tradition a number of years later.”

Chapter 4 describes musical instruments in terms of a physical model. A great deal of information is condensed into its 45 pages.

Chapter 5 is concerned with timbre perception, including masking effects, note-grouping illusions, and pitch illusions. The authors conclude that “A musical illusion only works by virtue of establishing a strong expectation in the mind’s ear of the listener.”

Chapter 6, on room acoustics, is the most mathematical chapter.

Students can work out equations for the absorption of sound, reverberation power level, critical distance of reverberation, reverberation time as a function of room size, effect of surfaces on reverberation time, room modes and the decay times, and the determination of the critical frequency separating diffuse and modal regions of a room response.

With only 37 pages, Chapter 7, Processing Sound Electronically, must be seen as a basic introduction to this enormous domain. It describes briefly filters, reverberators, chorus, phasing, flanging, pitch-time changing, sound morphing and vocoding, spatial processing, and loudness processing. A problem with this chapter, and indeed with the book, is the lack of references. The literature on acoustics, psychoacoustics, and audio-signal processing is voluminous. Yet in this 365-page text there are only 53 references to the literature, with no references at all for Chapter 1 (which includes spectrum analysis) or Chapter 7.

Thus I can offer only a mixed review. The information gathered in Acoustics and Psychoacoustics is reliable and useful. But for the student just entering the field, the book lacks an explanation of basic terms and notation. For the student who wants to explore further, the book falls short of references. If these issues could be addressed in a second edition, Acoustics and Psychoacoustics would then be a strong contribution to the literature and a welcome textbook.

Recordings

Bits and Pieces: EMS 30 Years


Reviewed by Jon Appleton
Hanover, New Hampshire, USA

Prior to the 1960s, Swedish composers were culturally isolated from developments in electroacoustic music in Europe and the USA. Although Bengt Hambraeus and Jan W. Morthenson had worked in studios in Germany, it was not until 1964 that Karl-Birger Blomdahl, representing a group of young composers, convinced the Swedish Radio to support the construction of a studio for the composition of electronic music.

The task ultimately fell into the hands of one of the most astute mu-
music administrators I have ever met, the Norwegian Knut Wiggen. He combined the qualities of a visionary, an intellectual spokesman, a megalomaniac, and a con artist. I worked with him in 1970 at Elektronmusikstudion Stockholm (EMS), and I briefly replaced him as director of the institution in 1976. My bias should be clear; I became caught up in a struggle between Mr. Wiggen and the young composers of Sweden, and I was a close, personal friend of composer Lars-Gunnar Bodin, who became director of EMS for a decade beginning in 1979. I continue to regard his work as among the most beautiful electroacoustic music ever composed.

When I first came to Sweden, I was overwhelmed by the fervor of young composers like Mr. Bodin, Bengt-Emil Johnson, Leo Nilsson, Jan W. Morthenson, and many others. For such a small country, Sweden had many institutions devoted to supporting new music (including electroacoustic music): a composer’s union [FST] consisting of 100 members, the Swedish Broadcasting Corporation, a Ministry of Education and Culture, a Royal Academy of Music, an active composers’ rights organization [STIM], a state office for the promotion of Swedish music (Rikskonsertfé, which included the record company Caprice), a Royal Conservatory of Music, and an exciting, media artists’ collective called Fylkingen. With so much financial support, it is not surprising that, in spite of the politics, EMS became a center for both Swedish and foreign composers and continues in that role to the present day. As the three CDs in this collection testify, some wonderful music has been created there.

Others besides myself have observed a Swedish style of electroacoustic music, from the earliest works of Mr. Bodin to the most recent music of Erik Mikael Karlsson. The music is sparse, with each event framed by silence. Each piece creates its own imaginative environment which the naive listener might associate with the popular conception of winter landscapes in Sweden. There is some truth to this programmatic stereotype.

The Bits and Pieces collection opens with Lars-Gunnar Bodin’s 1965 work Semicolon: Seance 4. The use of contrasting voices, humor, and delicate sonic transformations of the material point the way to Sweden’s greatest gift to the history of electroacoustic music: the text-sound composition. The use of silence to create expectation can also be heard in Anchors/Arrows, composed in 1992 by Erik Mikael Karlsson and Jens Hedman. The composers write of the work that “it may be seen as a tribute to music, anchored in music’s history but, we hope, also pointing forwards to the wonderfully mysterious and mythical future.”

Sometimes the use of voices is not successful, as in Jonas Söderberg’s work Sixty Seconds [1987]. Self-indulgent, the composer says of this 15-min work that “three movements are running in parallel to each other in time. SHAFT, KARST, and SHALE are representing three basic emotions. The whole is a message never expressed.” This listener agrees.

Åke Parmerud has been widely recognized for his unusually skillful work, often using instrumental sources. In Out of Sight [1981], the composer is working with the early digitally produced timbres for which EMS was known. The evocative glissandi and arpeggios over a wide frequency range contribute to this unique sound. Although Mr. Parmerud has a distinct flare for the dramatic, the work’s breathlessness and needlessly episodic nature make it difficult to enjoy. Perhaps this is because the music is only part of a multimedia work?

With a couple of exceptions, these discs concentrate on the work of composers born between 1951 and 1956, meaning that they came to electroacoustic music as an established medium but during a period of stylistic transition. For example, Rolf Enström, once considered the leader of the “second generation,” created a new Swedish style in the late 1970s, as can be heard in his work Sequence in Blue. His work was significant, and his recent absence from the electroacoustic music scene is noted with regret.

Another composer of this generation is Ragnar Grippe—a gifted musical chameleon. From his early musique concrète pieces when he was studying in Paris to his numerous and popular film scores, Mr. Grippe’s concert music seems surprisingly busy and passionless. The work included here, Musique douze (1976), was composed at EMS when he was 25 years old. As Mr. Grippe says, the work is a sophisticated “attempt to oppose instrumental sounds to their electronic equivalents.”

Contemporaries and colleagues, composers Peter Lundén and Anders Blomqvist are often mentioned to-
gether. Their works, however, show how different composers can be even though they come from the same time, culture, influences, and institutions. Mr. Lundén’s work, like Movements I (1990), is marked by attractive structures in which tempo, modulation, and spatial gesture are controlled to the point of predictability. In contrast, Mr. Blomqvist’s Carpe Diem (1981) is dramatic, undisciplined, and full of surprises. Sometimes the listener becomes a punching bag, and at other times a contemplative Buddha. In the program notes, Mr. Blomqvist says his “weaknesses include a predominantly unrequited love of pyrotechnics” and, about his own work, “although the piece is a good example of young, unabashed pathos with a touch of Sturm und Drang, it strikes me as containing some form of intent which I feel is lacking in much of the music that is being made today, both by others and by myself.” His honesty and modesty stand in stark contrast to most other composers on these recordings, most of whom say of themselves that they are “internationally recognized composer[s], teacher[s], and researcher[s] in the field of electroacoustic music.”

The two short works by Christian Bock, Klippt Hyland (1979) and Bosse i bitar (1982), are both quite wonderful pieces: clever, witty, spirited, and humorful text-sound compositions. Hopefully more of his work will soon be available.

Two works for which I have no understanding are Per-Olof Hellström’s irritating Off the Lip (1987) and Bo Rydberg’s Cadena (1988). Mr. Hellström’s notes offer no assistance to the listener. The work’s gestural energy is guaranteed to induce tinnitus, its tired, grainy gestures contrasting with empty reverberant space with a smattering of mandible excretions. This work is a truly enervating experience. The EMS wallpaper needs changing.

In the case of Mr. Rydberg, I think the piece is exactly as he describes, and the aesthetic limitations are my own. He says “the musical material consists purely of recorded sounds: a knock on wood [0.1 sec.], a nail scratch on wood [1.0 sec.], a chain rattle [10.0 sec.]. This is the only material used, but it is heavily processed by some computer programs on a VAX 750 computer and a FPS AP120 array processor. The processing includes filtering, multi-mixing, reverbation, time compression/expansion, and transposition, all done in stereo with time-varying functions.” How is this different from saying the work is composed for orchestra?

Unlike in the USA, it is nearly impossible to become a cultural citizen in Sweden. Three of the composers represented here have spent much of their lives in Stockholm and work both within and without Swedish musical culture. Like all immigrants, they mix their own musical sensibilities with those of their adopted culture.

Tamás Ungváry, an important and much-too-neglected composer, contributes his work L’aube des flammes (1984) to this collection. Although Mr. Ungváry has prided himself on the development of his own software, I nearly always find his work transcends technique and technology. Always imaginative, sometimes harsh, frightening, and even monstrous, Tamás Ungváry is the Franz Liszt of electroacoustic music.

Like Mr. Ungváry, Akos Rózmann was originally from Hungary, and he occupies a unique place in electroacoustic music. Like Gustav Mahler’s works, Mr. Rózmann’s require patience. His pieces often span an hour. They are episodic, highly personal, and remind me of the paintings of Francis Bacon. Superficially derived from church images and sounds, they make one feel the anguish of those possessed by religious fervor. There is nothing joyful in this music. The overall impression is that of the music of a tortured soul with the prospect of unrelenting and eternal angst. One leaves his music profoundly depressed.

William Brunson, an American living in Stockholm, has become a central figure in the Swedish electroacoustic music community. The work presented here, Tapestry II (1981), makes reference to music by Karlheinz Stockhausen, Mario Davidovsky, Jimi Hendrix, and Frank Zappa, but all within a consistent stylistic milieu. Mr. Brunson’s musical intelligence and wit are often very amusing, as in his more recent works like Pandora’s Box (1991) and The Lute of Pythagoras (1994). His works remind me of a cross between the music of Paul Lansky and Paul Koonce. The EMS has always welcomed foreign, visiting composers, and they have in turn enriched Swedish electroacoustic musical culture. Three such “guest workers” are included in this collection. The extraordinarily gifted Finnish composer Patrick Kosk contributes Der Raum Traum (1992/1994), mostly composed in Berlin. He describes it as “often rickety, aggressive, and hollow.” It is a music that makes time pass very quickly.

The Argentine Ricardo Mandolini, like Mr. Kosk, is a world-class composer. His piece Círculos fosforescents en fondo negro (1982) was created using Michael Hinton’s early but quite spectacular computer program IMPAC, running on a PDP-15 computer driving analog oscillators. Mr. Mandolini understands the principle of economy absent in much electroacoustic music. Like all immigrants, they mix their own musical sensibilities with those of their adopted culture.

Tamás Ungváry, an important and much-too-neglected composer, contributes his work L’aube des flammes (1984) to this collection. Although Mr. Ungváry has prided himself on the development of his own software, I nearly always find his work transcends technique and technology. Always imaginative, sometimes harsh, frightening, and even monstrous, Tamás Ungváry is the Franz Liszt of electroacoustic music.

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coustic music. His work strikes a beautiful balance between overall structure and detail.

Antiphonae (1989), by the Polish composer and electroacoustic pioneer Włodzimierz Kotański, blends the best of the Eastern European choral tradition within a seemingly timeless electroacoustic cocoon. Born in 1925, Mr. Kotański composes music that is widely admired in Europe and hardly known in the USA. Perhaps the inclusion of his work in this collection will begin to remedy this tragic situation.

The recent directors of EMS, Hans Lunell (1989–1993) and Ulf Stenberg (appointed in 1993) have contributed to the vital musical life of EMS as a creative center. So have numerous engineers who remain behind the scenes, such as Per-Olof Strömberg and Göran Svenson. There are also many Swedish composers who have worked at EMS but who are not represented in this collection. The glaring omission is the hugely talented Sten Hanson. The EMS could easily produce another three compact discs, and the record company Caprice should be encouraged to do so.

Andrew Czink, Susan Frykberg, Damián Keller, Giorgio Magnanensi, Hildegard Westerkamp, John Oliver: Harangue I

Compact disc earsay es98001; 1998; US$ 12; available from earsay productions, 720 Sixth St., #308, New Westminster, British Columbia V3L 3C5, Canada; telephone (604) 527-2358; fax (604) 524-9356; World Wide Web http://www.earsay.com

Reviewed By Robert Cummings Williamsport, Pennsylvania, USA

Much of the first half of Andrew Czink’s shadeless, populated lives up to the cacophonous connotations of this album’s title. Some metallic crashing noises (cut your volume for the first minute and a half or so) harass your ears, then spawn an insistent rhythmic pounding that yields little toward a change of mood. About halfway through, female voices emerge from this “...shadeless road peopled with ghosts,” and offer a hymn to the sun. The voices are shadowed by their own echoes, and provide this piece’s only truly compelling episode. The ending features a whirlpool of rising tones that ring bells and invite angry, swirling winds, as if a spaceship is ascending to the heavens. Not a complete disappointment, then, since the second half has its moments.

Susan Frykberg’s Astonishing Sense is another matter altogether. The work is supposed to be “...based structurally and textually on the process of giving birth.” Had the notes not revealed the work’s programmatic aspects, I would never have surmised them from the grave exterior here. A female voice in strongly accented New Zealand English is heard at the outset (the composer’s sister, it turns out), and then a violin plays music of strong Jewish or Middle-Eastern flavor, introducing a mood more of lamentation than anything joyous or celebratory. The voice then speaks in what sounds like Hebrew. There follows a climactic episode of shouted whispers and processed sounds that creates a mood of some desperation (or relief?), the accompanying violin—at times coming to center stage—always maintaining its grim demeanor. The voice speaks in English loudly but not clearly in the closing moments, but it is the violin that has the last word.

The composer is said to be a feminist (and a mother), and perhaps her dark, though probably not negative, take on the birth process stems from certain feminist convictions and social awarenesses. Of course, she might argue the piece is ultimately one of hope or triumph, as the notes suggest. I am not sure many will hear it that way. In any event, this is surely a thought-provoking work, but I cannot say I am completely convinced by it. Still, it offers substantial merit, not least because of the excellent writing for the violin. Nancy DiNovo’s playing captures the atmosphere quite effectively, and comfortably meets the technical demands.

To Lions Gate, by Damián Keller, offers sounds from Lions Gate Bridge in North Vancouver. The notes do not specify what sounds were recorded and processed, but much of the sonic fabric clearly betrays its metallic origins. The piece seems to evolve from sustained notes and chords that crescendo and decrescendo, pulsate, and break apart. About midway through it stops, then starts up again; and while there is a climactic episode of some appeal near the end, the work never quite transports the listener across the bridge to find out what the whole thing was all about.

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In addition, the composer’s notes about the rain sounds [from the west coast of British Columbia] and about the work in general are most informative.

John Oliver’s Copper Flying closes the disc on a positive note. The sounds are from a MIDI guitar, and after a restless opening they seem to become blasts from space-age brass instruments: they repeatedly howl and bellow stately, powerfully ominous sustained chords that diminish in rapid descending scales. This is most engaging, creating an image of the guitar coming to life via some sorcerer’s apprentice and doing mischief. At the end the guitar returns to a completely peaceful demeanor. A most effective and evocative piece.

In sum, the pieces by John Oliver and Hildegard Westerkamp are successful here, and the entry by Susan Frykberg, while less compelling [though thought provoking], is also worth examination. The sound is excellent throughout.

The Frog Peak Collaborations Project

Compact disc set (2) FP007; 1998; US$ 20; available from Frog Peak Music, P.O. Box 1052, Lebanon, New Hampshire 03766, USA; telephone/fax (603) 448-8837; World Wide Web http://www.sover.net/~frogpeak

Reviewed By Robert Cummings

Williamsport, Pennsylvania, USA

Collaborative works are hardly anything new. Gay and Pepusch’s The Beggar’s Opera, from 1728, incorporated the music of many composers of the day, including Purcell and Handel. Hexameron (1837) featured the efforts of Liszt, Chopin, Thalberg, Czerny, Herz, and Pixis. The Frog Peak Collaborations Project, under review here, does not quite offer such comparative stalwart’s from among its 66 composers, but nevertheless, this two-disc set contains some interesting, perhaps even masterful, music and sound art on its 115 tracks. Normally, I list composers and work titles in the headnote; however, I think the reader will understand such an undertaking would inflate the review to Brobdingnagian size.

This project was conceived by Larry Polansky [composer of five pieces here] and Chris Mann, who reads a bizarre text with meanings buried deeper than anything in Dylan Thomas. It is this text, which appears on track 60 of CDA (the other disc is labeled CD1), that is the basis of all the pieces, each being a processing in one form or another of all or part of Chris Mann’s 66-sec reading. Mr. Mann’s voice in the original soundfile is already processed to a degree, and often appears to be effecting a falsetto quality. Various composers submitted their approximately 1-min-length creations [some submitted several, in fact], to Mr. Polansky, who then grouped the pieces to form this double-CD set. Thus, the compositions are actually not collaborative in the truest sense, but separately wrought devisings that could be performed independently or in different order. [Actually, one could make
this same observation about Hexameron, too, and a few Frog Peak works did actually involve more than one hand.) This project is apparently ongoing, since you can obtain the soundfile on the Internet at http://online.anu.edu.au/ITA/ACAT/trk/FrogPeak.aiff, and can submit your lone or several treatments of the material (limited to approximately 1 min each) to Frog Peak Music for consideration.

At any rate, it is the end product we are concerned with here, not so much its gestation. As suggested above, a good many of the pieces are worthwhile. In fact, I would say there is hardly a dull moment on either disc. In no particular order of significance then, except as they appear on the first disc (CD1), I’ll mention some of the more intriguing efforts. Dennis Báthory-Kitsz’s trio of works—zéyu, quânh, and sweeh (tracks 6–8)—offer, in the first, atmospheric and rhythmic music with machine-like effects and innovative vocal intrusions, as if the voice is stumbling onto the sound field; the second sounds like a buzz saw over top of a heartbeat to produce a piece of middling artistic worth; and the last presents rhythmic peeps and a return to the strange vocal sounds in the first, to generally good effect. Han-earl Park’s electronic study for limited resources (track 9) displays innovative vocal processing with hicc-up-like sounds and half-whispers interspersed rhythmically with space-age swirling sounds. John Phillips’s vocal processing in It Was! (track 11) is quite inventive in its echo-like effects: the voice at times shadows itself fugally in a rambunctious blaze of sonic banter. Warren Burt’s Mann-gling #1 (track 12) reminds you of someone rapidly switching radio stations and then heavily processing the results in layers of slow and fast, loud and soft, all in the same sonic fabric, to marvelous effect.

Lulu Ong’s Gribbit, Alley Cat, and Not Enough Coffee, are all colorful, with the middle piece containing a most intriguing, slow-as-molasses, raspy vocal processing. She has imagination and talent. Kent Clelland’s collection, Seven Sisters under a Full Moon (tracks 20–26), also show a creative gift. In Isabella, echo-chamber-like effects seem to convey cries of desperation or pain; Tata swirls with brilliant space-age effects, vocal bits underpinning. Amanda is deliciously chaotic with many competing lines; Elena is masterfully understated with a rich, eerie atmosphere. Tim Prezzano’s Questionable and Hush, Hush, Eye to Eye (tracks 28 and 29) are quirky and off-beat both rhythmically and atmospherically in their shared quaint beat and voice processing. Perhaps the most appealingly bizarre creation on either disc is Elizabeth Hinkle-Turner’s Saliva. It reminds you less of saliva and more of water, from which the voice emerges comically in gargles and bubble-talk.

Lawrence Fritts’ Minute Variations (track 34) offers four variations: a sort of start-and-stop scheme, where the heavily processed voice seems to pop out from restraint here and there, dominating the mood and offering considerable color in its mostly fast-paced sound world. The last minute is slow and quiet, and less compelling. The ensuing track, offering Best Intentions, is 1 min of silence. A joke? I’ve heard it before.

Fernando Iazzetta’s busy Crowd (track 36) offers just that—a seeming crowd of processed voices. A good effort. Better still is Nick Fortunato’s trio: filter: Mann (sense), filter: Mann (eee’sipi!), and filter: Mann (hypert) (tracks 37–39). They present a range of processing, the last of which, a screechy, static-ridden creation, will either grate on your nerves or strike your fancy. I’m in the latter camp. Trojan Theatre (a group composed of Richard Wilding, Ben Suthers, Bruce Schneider, Greg Jenkins, and Noel Burgess) serves up Basho and Tungba (tracks 47 and 48), atmospheric slow pieces of merit that allude to melody in the first and exude peace and exoticism in the latter. Bob Pearson’s Adaptive Parasites (track 55), like many of the pieces here, such as Rick Rue’s trio, Carillon, Mapmaking, and Drums (tracks 3–5), displays interesting processing of the voice, but alas, fails to capture your interest fully or to show some worthwhile innovation.

On to CDA. Ted Apel’s breathy off-kilter rhythms in Lay Investiture (track 2) may appeal to some but not to me. Huk Don Phun’s second piece, two (track 9), is compelling in its colorful repetitions—repetitions which meld into an insistent rhythm that takes over the piece. Gibber, by John Richey, pops and stammers and plucks its processing along, with silence its only background harmony, to produce a clever gem. Joseph R. DeFazio’s Four Studies on the Word “Is” (tracks 13–16) wrings more nuances from that word than the president’s legalisms, producing ominous howls and otherworldly grunts and space-age ringing. Imaginative. Dogs (track 20) reveals Herb Jercher’s mind to be quite fertile: a metallic pounding and a low-pitched intermittent whistle are intruded upon by insistently processed utterances that seem to be jumping out of a poor, loud amplifier. The piece is amusing and clever.

Clever and more can be said of Larry Polansky’s Chris Choir (track 25), whose processed sounds seem to echo from within a well as the voice slowly and subtly emerges to

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The rambunctious frothy chatter in Charles Grafton Hawthorne’s *Four Boys Mannin* (track 26) is more cute than clever, and Tyler Boys Mannin’s “Speedboy” Kingdom holds your interest with processings in his seven *Time Studies* [1, 4, 5, 6, and 7 on tracks 27–31] that multiply the voice, speed it up, slow it down, reflect it, bounce it around, and nearly make it dance. Mr. Polansky appears again in the next four cues, *Chris Morphs* 1, 3, 4, and 5. Once more he does not disappoint: Chris Mann’s text in each piece begins with little or no processing, and then begins a journey through metallic echoes and multiplications to produce a finely crafted piece, with each entry in the quartet sounding similar (the musical structures, in fact, are virtually identical in all four), yet individually attaining something quite different. D’Arcy Philip Gray’s *theReason* (tracks 36–39), comprises four interesting pieces, the second of which, *iunav/iis: Intermesse*, serves up a harpsichord-like incarnation of the text in a hesitant, rhythmic rendering that is very catchy. The last of the quartet, *theReason: Epilogue*, is haunting in its bagpipe-like sonorities and percussive thumps.

Peggy Madden’s threesome includes attractive, if light, treatments, the second and third, *Adnawat* and *Nada* (tracks 45 and 46), displaying comical charm in their perky, upbeat rhythms and oddball vocal accompaniments. Carter Scholz converts the text reading to MIDI piano tones in *An Economy of Virtual Unknowns*, similar to Rainer Linz’s *Piano* (CD1, track 15). Neither piece succeeds. Dennis Miller, however, succeeds in unearthing a range of sounds and approaches in 1–5 (tracks 49–53). His last entry is especially charming: it features a rhythmic theme that itself would have a viable second life on a piano. Akira Rabelais’s *Three Minutes of Fifteen Seconds* (track 57) reminds you of searching in vain on a stubborn short-wave radio for your favorite foreign station. Not bad. Much more interesting is Andrew Bucksbarg’s *Autonomic*, which seems to scream out in high-pitched distortions that become a chorus of howling dogs. As mentioned at the outset, track 60 brings us Chris Mann reading his surrealist text. And there you have it. I could not cover every piece, of course, and probably overlooked some fine efforts in my comments.

In sum, this is a most interesting set that should appeal to a wide audience. My only regret is that some of the pieces here introduce ideas that yearn for expansion: one minute just seems an unreasonable constraint that might stifle creativity in certain cases. Still, with good sound and decent album notes, this collection makes an attractive purchase.

Bob Gluck: Stories Heard and Retold


Reviewed by James Bohn

*Normal, Illinois, USA*

Bob Gluck is a reconstructionist rabbi who has been writing electronic music since the mid-1970s. He began his formal musical studies at Juilliard, ultimately completing his undergraduate degree at the State University of New York at Albany, and has studied with Donald Funes, Joel Chadabe, and Regina Rubinson. Currently, Mr. Gluck teaches electronic music at Simon’s Rock College. In the liner notes to *Stories Heard and Retold*, he mentions the influence of several composers: John Cage, King Crimson, Jimi Hendrix, Pierre Henry, Charles Ives, Karlheinz Stockhausen, Igor Strawinsky, Toru Takemitsu, Edgard Varèse, and Frank Zappa. The aesthetics of his approach to the medium is very French in his use of soundscapes composed of several layers of raw environmental sound.

*Scene/Seen in Shul* is the clearest example of this approach on the recording. The work is constructed from “ambient recordings...from a variety of synagogue and prayer settings, between 1967 and 1997.” As is typical for soundscapes, the most prevalent technique used in this composition is layering, producing at times thick, rich textures. It is used extensively in all six movements (*Antechamber before Services, Maariv, Pages Turning/ Torah Aliyot, Davening, Group Prayer, and Closing*). Another commonly used technique in this work is looping. The piece is dedicated to the
of a human voice
whales, harbor memories, and echoes
sounds of ram horns, and passing
portray a sense of the hyperstimula-
tion and duration. In addition, these
pounded by the emphasis of both vol-
tions consist primarily of a synthe-
soundscapes refresh-
ing, ambient sounds that occur si-
of heavily processed sounds that result
in explicitly pitched or pad-like tim-
. The first song, Unter dem kindes vigele, seems to work like a fugue of
berly-like movement, Mir zyen nikhter, which translates as “I am not drunk,” is
modeled on jazz from Hell-era Zappa. Oyfn priptshik utilizes a synthesized
accompaniment featuring piano
in explicitly pitched or pad-like tim-
strings pads mask other, more inter-
Hymn
rendered what this was, so a quick Web
search turned up the author’s on-line
Master’s thesis, “Expressive Elec-
tronics: User Interface Design and
Timbral Manipulation in the Music of
Nick Peck,” in which he describes
Rothscape thus: “I enhanced the capa-
abilities of the [Kurzweil] K2000 by
adding a fader controller, a Mac, and
custom software written in HMSL
[Hierarchical Music Specification
Language, a Forth-based system for
real-time MIDI event generation and
transformation] to create the
Rothscape system. The Rothscape
system...is designed to have the
computer add timbral variation
while the performer is generating the
primary sonic events on the
Kurzweil keyboard.”

Track 1, Wind in the Wires, was
made using a Moog modular synthe-
sizer, custom software, and sampler.
The piece begins with a restful bass pulse counterpointed by a rapid ticking sound. Eventually this explodes into gated vocal fragments, which undergo a veritable MixMastering. The piece has an arc from slow and restful through fast and busy to slow again. The timbres are classically electronic, dry, and clean, and they have a beauty of their own. The composer times his transitions and inserts inflections at all the right places to hold the listener’s attention.

Track 2, Rothscape I, was made with the Rothscape software and the Kurzweil K2000 sampling synthesizer. This piece has quite a different feel than the first. The Kurzweil apparently is being used as a palette of varied materials, including phasing sine tones, drum loops, and FM clangs, to be played while being modulated by the custom software. The piece gave me the impression of noodling or free improvisation, which certainly can produce wonderful music, but in spite of another arc from quiet to loud and busy with a little coda at the end, the construction was not as tight or as satisfying as Wind in the Wires, and the explorations were only sometimes startling or surprising enough to overcome the slackness.

Track 3, Rothscape II, was made with the same tools as the previous piece. The palette of materials consists of a quite varied and sometimes rather beautiful assortment of crackles, frying sounds, white noises, rainfall-like noises, and various shredded and granulated noises. The sounds themselves were so attractive that, even though again the impression was of noodling, the transitions and contrasts were deeper and more involving.

Rothscape III, also made with the same tools as the other two of the cycle, was co-performed with Aaron Muszalski. An even wider assortment of sounds, including samples with melodic, harmonic, and vocal content, is subjected to an even looser assembly. Due to the melodic content and recognizable samples, the piece sounds like a freer and more abstract version of music I have heard from The Orb, or The Future Sound of London, and is not far distant from DJ Shadow. At the end, however, I was left wishing that more organization had been imposed upon, or discovered within, the materials. I would be more eager to listen to The Future Sound of London again than to this.

Track 5, Lullaby, was made using a short-wave radio, and ProTools and SoundHack software. The concept seems to be that of a boy listening to short-wave radio at night when he is supposed to be sleeping, but in this case the radio receives from some sonic unconsciousness, in which the heterodyne whistles, interfering channels, and shredded snatches of music and voice convey fragments that never become articulated. This piece left me wishing for some culmination, a window into meaning, or an epiphany instead of a mere fadeout.

The final track, Duet, was made with electric guitar [played by Gary Morrell], along with ProTools and SoundHack software again. The deep groaning, phasing, beating sound must be the guitar, pitch-shifted and perhaps otherwise transformed. Overlaying this is a scum of scraping, rustling, sometimes chiming sounds, perhaps the player’s fingernails on the windings of the strings. The signal-processing transformations add a big “bottom,” even a certain grandeur, to the music, without giving the impression of getting in the way or leaving anything out. At the end, almost unrecognizable pads of vocal sound support the guitar. It was startling to recognize how much cohesion is given to the piece not only by being played through, but by having pitches, tonality, and a drawn-out and submerged but still meaningful tune. This, together with Wind in the Wires and Rothscape II, is the piece that I would listen to again.

On the whole, my initial picture of a composer at home with electroacoustic music was borne out, but I was left wondering if he grasps exactly where in his music others are likely to find the moments of real coherence, and why.

Ossatura and Tim Hodgkinson: Dentro

Compact disc ReR 01; 1998; available from Fabrizio Spera, via A. Tempesta 65, 00176 Rome, Italy; electronic mail emartus@tin.it or megacorp@dial.pipex.com

Reviewed by Camille Goudeseune Urbana, Illinois, USA

The ensemble Ossatura performs with guitars, samplers, “electroacoustic objects,” various synthesizers, drums, Italian radio broadcasts, and amplified objects. Tim Hodgkinson contributes guitar, saxophone, and bass clarinet. Additional “sound fragments,” for the samplers I assume, are taken from the works of almost a dozen composers known to Computer Music Journal readers, from the familiar to the obscure.

Credits say nothing more than “Music by....” The listener is left to wonder how much was notated, and how much was improvised. Certainly a fair amount of local detail
was created only when tape was rolling, but the locus of other decisions—composer’s desk, ensemble rehearsals, coffee breaks between takes, or the editing studio—is not given to us. Perhaps the question reflects an outdated view of technology, and what ultimately matters is only the inscrutably all-black disc. Several abstract, diffuse paintings have been well chosen to complete the opaque presentation of the work.

The booklet has no textual program notes explaining the difficult music or the mysterious titles. Instead, it has six intriguing photographs, ostensibly close-ups of the sonic apparatus used in the recording: chains, bowls, an electric guitar body, springs, a clarinet, various mallets, wires, and cables. The lack of text is understandable, the music itself being so rich in associations. But this review is limited to words, so enough theory already. Here is one of many possible verbalizations of the listening experience.

_Enorme Registratore_ has many layers of rhythms, lurching from fast granular synthesis to ambient slow and everywhere in between, of an unnamable welter of electroacoustic sounds that are interrupted by Joey Baron-esque drum solos. Settling into a quiet groove, more layers are gradually introduced, followed by a sudden interruption by radio announcers. Growth is resumed to an alarming level, like 20 ICMC concerts at once.

_Juggled in Gravity_ reminds one of an overeducated punk/grunge band studiously avoiding pulse and tonality, incorporating an industrial bass line [guitar or Moog, hard to tell], single guitar notes like Webern _Klangfarbenmelodie_, a drummer with a bad hangover, street sounds, and prepared guitar. There is a long percussion “solo” [alto sax squeaks are just more percussion]. The radio announcers open the door for a few seconds of commentary.

_Oltreascolo_ is a 20-sec fragment. _Tempo come Fermo_ offers a wide, imaginative collection of percussion sounds, with more tortured saxophone squeaks, crunches and furious key clicks. The Moog/sax duet is followed by a melodic Arcadian reprieve. In this piece, everyone is playing full-tilt amps-turned-up-to-eleven, and it suddenly cuts to a bass-clarinet drone. The Moog is gradually immersed in a bath of insulation-eating acid, sparking and malfunctioning, played all the while by a dedicated Ferneyhough specialist.

_Deserto Facciale_, _Tempo...Usura..._ starts with a groove of gently scraping machine noise that slowly reveals itself. Muezzins! Accordion clusters, _cathedrale engloutie_, frantic, impenetrable electric banjo picking, distant metal screeches, and sax wails pick up the speed, then come together with two bells tolling the bar numbers like the Great Gate of Kiev under mortar fire. _Description_ offers another reprieve of sustained guitar, synthesizer, and long bass guitar notes. Percussion sneaks in after a few minutes along with fast clouds of high keyboard licks that have an indeterminate timbre.

_Innesto_ reveals Bela Fleck trying to ruin his reputation though sticking to his idiom. Pierre Henry then outdoes him, panning around his most obnoxious squeaky-door sample ever. This is more “every-one-at-once” sound.

_In Bioplast_, vocal phonemes are very high, very low, mutated beings that are desperately trying to communicate intelligently, but failing. All of this occurs over a changing layer of fast percussive grains that shifts too fast to follow. The Moog was apparently repaired in the interim, only to be subjected to some more malfunctioning. Power tools appear. _Tour of Known Total Memory_ is the last sax-plus-Moog duet with a backup vocal trio and the return of Joey Baron. Flowing water samples ensue, and everything is panned around. A soliloquy is followed, finally, by vinyl surface noise.

From its sheer density of information, the variety of places to direct attention to, _Dentro_ bears repeated listening, even demands it...unless it drives you crazy first. I had to rip my headphones off occasionally. This alone suffices to recommend the recording as an addition to one’s collection.

Records
Films

Steven M. Martin: Theremin: An Electronic Odyssey

Film VHS 5080, 1995; 84 min, color, Dolby stereo, available on Orion Home Video from Big Briar, Inc., 554-C Riverside Dr., Asheville, North Carolina 28801, USA; telephone toll free from the USA (800) 948-1990; telephone internationally (828) 251-0090; fax (828) 254-6233; World Wide Web http://www.bigbriar.com

Reviewed by Daniel Hosken
LaGrange Illinois, USA

Theremin: An Electronic Odyssey is a documentary intended for general audiences. As such, it tells a relatively simple—and somewhat simplified—story in a very engaging way, complete with intrigue, passion, and humor.

The “Theremin” of the title refers both to the inventor and the instrument—a duality that is reflected in the narrative, which traces the two stories in parallel. For convenience, I will divide the 84-min film into three roughly equal sections. The film begins with an off-screen Leon Theremin (Lev Sergeivich Termen) describing memories of his own birth. The first part of the work that follows shows Mr. Theremin and his invention in New York in the 1920s through interviews, old home-movie footage, and stills of newspaper headlines. The excitement surrounding this new invention is palpable.

In this first section, we meet two of the three primary interview subjects: Clara Rockmore, Theremin virtuoso and early associate of Leon Theremin, and Robert Moog, of Moog synthesizer fame. Indicative of the filmmaker’s sense of drama, the third major interview subject, Mr. Theremin himself, isn’t shown in person until nearly halfway through the film. Ms. Rockmore gives much of the interpersonal and artistic information about those early days, and Mr. Moog provides the technological descriptions and a sense of the excitement generated by Leon Theremin’s innovation. We are also treated here to a generous dose of Clara Rockmore’s impressive Theremin playing—the sound of the Theremin, played by Ms. Rockmore and others both on- and off-screen, permeates the film. This part of the film gives a sense of the boundless possibilities of this new electric invention, mirrored by the expectation that Mr. Theremin himself is bound for further success both technologically and personally.

The second part of the film begins dramatically with a recounting of Mr. Theremin’s mysterious abduction by his Soviet countrymen and hints that he has been killed. Leon Theremin’s personal disappearance stands in contrast to the dissemination of his invention and the popularization of its sound in movie scores. The film clips of Mr. Theremin in the first part of the film are now replaced by clips of the science fiction and suspense films that made the sound of the Theremin part of popular culture. The eerie soundtracks of these film clips also seem to serve as this documentary’s soundtrack to Mr. Theremin’s continuing unexplained absence. This use of the Theremin in a popular context is decried by Clara Rockmore, who asserts that it is a serious instrument and not just a generator of spooky atmospherics.

Ms. Rockmore’s recounting of her discovery that Leon Theremin was still alive leads to the first appearance of the inventor himself. Mr. Theremin, age 94 at the time of these interviews, recounts his contact with Stalin and his years working for the KGB acoustically “cleaning” recordings made by KGB bugs. We are also treated to Mr. Theremin’s own brief description of the workings of his instrument and the sights and sounds of him tuning a Theremin in a Moscow museum.

The last section of the film begins with Robert Moog linking the Theremin to his own synthesizers and describing the sudden popularization of electronic instruments in rock and roll: “What went in was...Clara Rockmore...and what came out was...Brian Wilson.” What follows is a hilarious interview with
Brian Wilson who discusses, among other things, the inclusion of the Theremin in the song *Good Vibrations*. (Oddly, the instrument shown in the video clip of *Good Vibrations* doesn’t seem to be a Theremin!) The sudden popularity of electronic instruments is mirrored by a New York Times reporter’s discovery of Leon Theremin at the Moscow conservatory. The ensuing newspaper story disrupted Mr. Theremin’s obscure and presumably comfortable life. It seems that the spotlight illuminating Mr. Theremin’s electronic progeny could not help but shine on him as well.

The final touching scenes of the film show the inventor’s return to New York and his meeting with Clara Rockmore. The credits end with the announcement of Leon Theremin’s death.

I began by asserting that this film is intended for general audiences. That this film is not intended as a video research paper should not be cause to dismiss its value. I have tried to base my evaluation on the apparent goals of the filmmaker, not the infinite number of different films he could have made on the same subject. In general, documentaries are better at telling compelling “true” stories than presenting detailed research, and *Theremin* is no exception.

This film has a great many positive elements. First, Leon Theremin’s naturally compelling personal story is well told with dramatic pacing and presentation. Second, the technical details of the Theremin are revealed in sufficient detail for the layperson to appreciate the device, but not so much that it turns into an electronics review. Third, the use of interviews interspersed with on-screen Theremin playing, home movies of Theremin and Co., and clips of Hollywood films utilizing the instrument keeps the presentation fresh and lively (the priceless interview with Brian Wilson and the clip of Jerry Lewis clowning with the instrument are, by themselves, worth the price of admission). In addition, the film is positively drenched with the sound of the Theremin, keeping its unique sonic characteristics ever present as the story unfolds. Perhaps the most valuable element, from the point of view of the computer music community, is the sheer joy that leaps off the screen of putting technology in the service of art. The technological innovators in this film are not cold intellects destroying the human art of music, but joyful participants in its creation.

There are, however, a few problematic elements. Though seemingly minor, I found the lack of clear time refers very distracting. Mr. Theremin is abducted—when? Ms. Rockmore meets him in Moscow—when? Mr. Theremin is found by a New York Times reporter—when? Some questions like these can be inferred by piecing together information from the various interviews, but it is a serious distraction from the drama that the filmmaker is so clearly striving for.

Where the time-line flaw is a small mistake in execution, I find two other flaws that are more basic to the film’s approach, each of which I believe could have been addressed, if only briefly, without ruining the dramatic arc of the film. The first has to do with the technological context that existed at the time of the invention of the Theremin. While Leon Theremin was certainly an innovator, he was not the lone genius that the film portrays. The beginnings of radio and advances in recording technology, along with a growing artistic aesthetic that demanded new instruments and modes of expression, were all developing nearly simultaneously with Mr. Theremin’s invention. In addition, a quick look through a good history of electronic music reveals that the Theremin is not even the first electric instrument. The recognition that these advances were in the air in no way detracts from Mr. Theremin’s accomplishments and would have provided the viewer with a richer context within which to place his innovations.

The second flaw I find in the film’s basic approach has to do with the limited view of the impact of electronic instrument technologies. We are shown Brian Wilson and Todd Rundgren in this film (and then only briefly), but the impact on “art” music remains completely unexplored. In one clip, Leon Theremin is being honored by Stanford University, with some computer music luminaries standing unnamed in the background. Is Stanford really honoring Mr. Theremin because he made *Good Vibrations* possible? Or is there perhaps some more significant result of his work that is going unmentioned? Classical music is brought up early in the film, but only as a prop to back up assertions of legitimacy made about the instrument. In the narrative, these “legitimate” uses are seemingly swept aside by rock and roll.

These flaws, however, are not enough to overwhelm a generally fine documentary. These problems simply mean that one cannot really understand the context and impact of the innovations shown just by watching this film.

For the intelligent layperson [the typical target audience for a documentary], *Theremin: An Electronic Odyssey* is an excellent introduction to the Theremin and the idea of...
Iara Lee: Modulations

Film; 1998, 75 min, 35-mm color, Dolby stereo; viewing information available from Caipirinha Productions, 1120 Fifth Ave. #15a, New York, New York 10128, USA; electronic mail caipirinha@caipirinha.com; World Wide Web http://www.caipirinha.com

Reviewed by Kim Cascone
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“In music, the instrument often pre-dates the expression it authorizes.”
—Jacques Attali, Noise: The Political Economy of Music

Modulations is independent-film-maker Iara Lee’s second feature-length documentary exploring the outer boundaries of premillennium culture. In her first film, Synthetic Pleasures, she focused on exploring artificial environments and how our culture has been impacted by technological philosophy in the 1990s. In Modulations, Ms. Lee turns her lens to exploring the synthetic landscape of electronic dance music. By interviewing dozens of artists and DJs involved in various cities/scenes around the world, she traces the roots of techno from its birth in Detroit to its global mutational outbreaks.

Electronic dance music has enjoyed an explosive growth in the past decade, with more and more of its fabric now being woven into commercial media in the USA. Examples abound: from the Madonna album produced by William Orbit to the new Volkswagen Beetle television commercials underscored by lush beat-driven electronica to the relative superstardom of bands like Prodigy, Orbital, and Future Sound of London. Even bands like U2 and R.E.M. are embracing studio techniques to lend a more contemporary sound to their recent releases.

By giving her subject abundant space, Ms. Lee brilliantly weaves an amorphous narrative, letting the subject matter reveal itself through the patient process of drawing out and examination true to the documentary format. One flaw in using this approach with such a specialized subject matter, however, is that there is little relevant information given with which newcomers can orient themselves. Even though a historical framework is put into place early on by invoking the usual list of electronic music’s founding fathers—John Cage, Luigi Russolo, and the Italian Futurists, Edgard Varèse, etc.—some important figures in contemporary electronic music are absent: Peter Namlook, Wendy Carlos, Aphex Twin, Yellow Magic Orchestra, The Residents, Tangerine Dream, George Clinton, and Brian Eno. These figures could have helped to provide a more intuitive chart when trying to navigate the various subgenres of techno mentioned in the film. Additionally conspicuous is the lack of any female DJs or artists working in electronic music. Ms. Lee could have shed some light on the issue of female DJs/artists trying to break into the world of techno by featuring interviews with Riz Maslen, Susanne Brokesch, Miss Djax, Alaura (ex-Psychic TV), Moonbeam from DubTribe, and Bjork.

If you have an interest in watching a documentary-styled tone poem on the history of electronic dance music and already have some exposure to the subject, Modulations provides an interesting insight into a genre that continues to defy most mainstream media’s attempts to classify and define it. The uninitiated, though, will leave more confused than when they arrived. Word has it that a book version of the film is in the making, and may be a good companion piece to Modulations for those who want to better explore the abundant territory of electronic dance music.