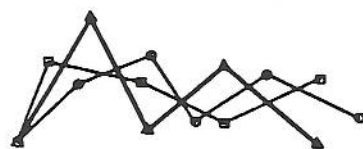


# Chroma



*Newsletter of the Australian Computer Music Association, Inc.  
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## CompMusic '93

*...a Symposium on Computer Music*

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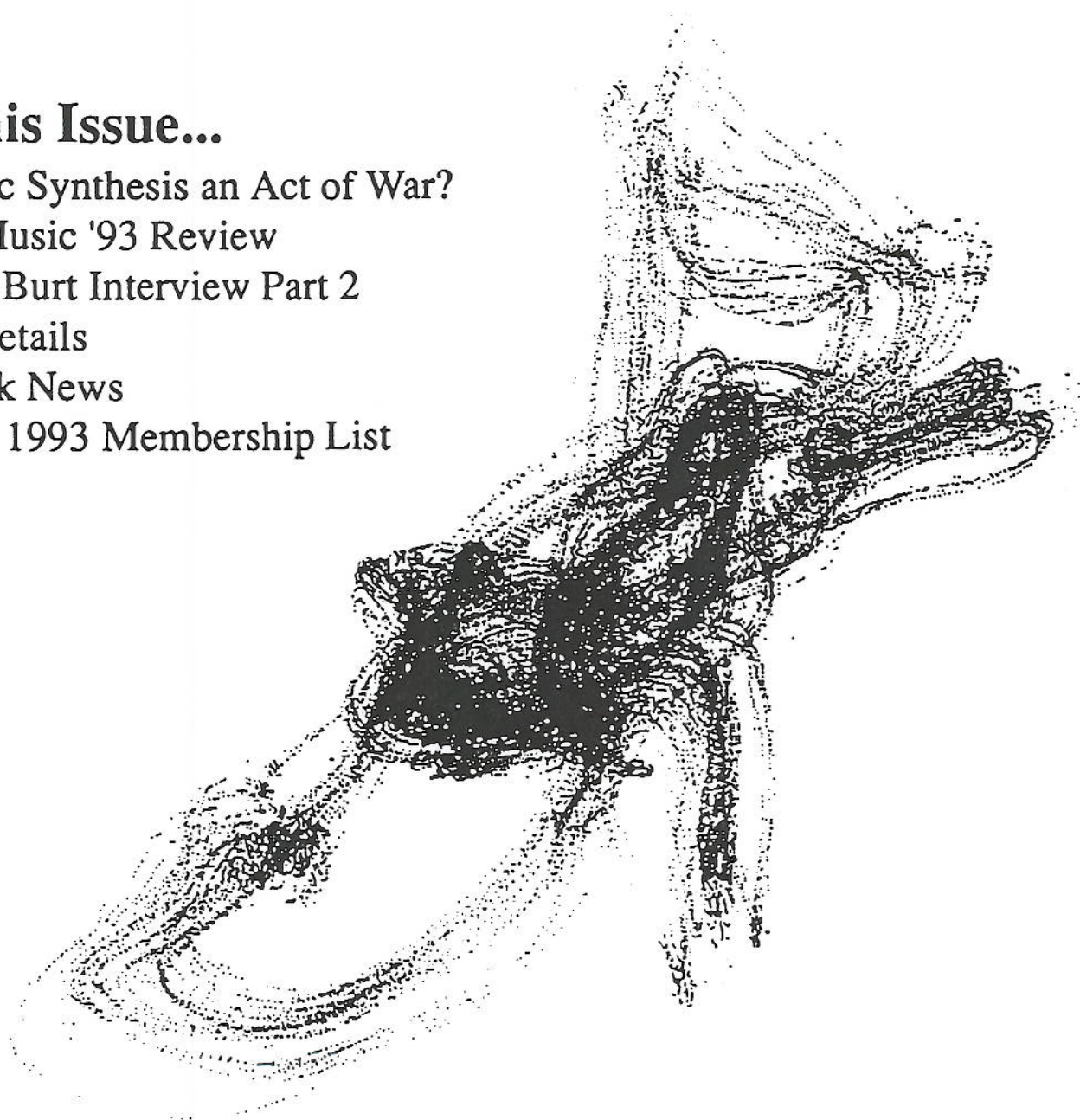
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### 1993 Annual General Meeting

The 1993 AGM is fast approaching and will be held at 8pm on Tuesday 9th November at Melbourne University, in Room A222 on the 2nd floor (entry level) of the Arts Education Building, cnr. of Swanston and Grattan Streets in Carlton, Melbourne. All committee positions will be open to election, so interested parties are most welcome to attend and express their views and present their own nominations for any of the positions; President, Vice-President, Treasurer, Secretary, State Representatives, Publishing and concert organisation, etc. We look forward to seeing you on the night.

### Journal of the Australian Computer Music Association

The new ACMA journal, now officially titled *Mikropolyphonie*, will have its first issue published at the end of this year. Unfortunately, we have been unable to produce two issues this year due to a number of circumstances (including the absence of the editors abroad), but the December issue will be a larger one to accommodate the entire proceedings of the CompMusic '93 Symposium held in Sydney in July. Beyond this inaugural issue, we will be needing to fill the journal with your original articles, which will need to be submitted by about April for inclusion in the July issue. The focus of the new journal is on more in-depth discussion of music and technology research and aesthetic issues, and we hope the journal will prove to be a forum for fruitful discussion.

### CompMusic '93

On July 10th, Sydney University played host to CompMusic '93, a one day symposium held to showcase the latest developments in computer music research and composition within Australia and New Zealand. It was felt to be a great success by all who attended, and many thanks go to Fiona Allen, Anthony Hood and Gordon Munro for organisation, and the helpful volunteers (Gordon's family?) for their hard work. Peter McCallum's article on page 10 of this issue is a review of this symposium which

appeared in the *Sydney Morning Herald*. This year's symposium is the first of a new annual series of computer music symposia to be organised by ACMA, with next year's one planned for Canberra, which will be followed by Brisbane in 1995, currently being organised by Andy Arthurs. Those wanting information regarding the Canberra event in 1994 should contact David Worrall at ACAT on (06) 239 6986 or e-mail David.Worrall@anu.edu.au.

### ICMC Tokyo '93

The 1993 International Computer Music Conference held in Tokyo in September was attended by an impressive Australian contingent. The Next issue of *Chroma* will feature combined reviews from local participants and full details of ICMC '94 to be held in Aarhus, Denmark.

### Network News

ACMA, with the assistance of La Trobe University, has established both an electronic mailing list and an ftp site for computer music in Australia. See the write-up on page 12 for details on how to gain access to these new facilities.

*Chroma* is edited by Stephen Adam and Thomas Stainsby. ©1993 Australian Computer Music Association, Inc. and the authors.

*Chroma* is published bi-monthly and back-issues are available at \$2.50 each, with a compilation of issues 1-9 available for \$18.00.

## Computer Music and Videos Concert

8.00 pm  
Sunday November 14th

Lower Town Hall  
Burwood Road  
Hawthorn, Victoria

*Tickets at the door*



# Is Music Synthesis an Act of War?

by Judy Pile

CHOOSE A MIC. FROM YOUR ARSENAL;  
TARGET THE SOURCE;  
ARM THE SAMPLER;  
CAPTURE THE RENDITION.

BOOT THE COMPUTER;  
POSITION THE BOMBSIGHT CURSOR;  
TRIGGER THE SEQUENCE  
AND  
SURRENDER TO THE BEAT  
(*resistance is useless*)<sup>1</sup>

An experiential response to the language and culture of  
mainstream audio technologies

or

## IS MUSIC SYNTHESIS AN ACT OF WAR?

### I. 'IMITATIVE SYNTHESIS'

"It is commonly supposed that women's reluctance to engage with... computing stems from a feminine fear of systems of abstract and formal rationality... But what if we supposed these resistant women were rejecting the masculinist *irrationalities* rampant in the discourses around computers and computing? The problem would then appear to be the *masculine* resistance to admitting the extent to which perverse and erotic fantasies are reproduced in what is supposed to be a supremely rational terrain. For where their existence is denied, these irrationalities operate covertly as uncontested norms unfriendly or inhibiting to women. By critically acknowledging these mythic dimensions, teachers of science and technology subjects might empower women by validating a diversity of affective and enabling metaphorical components of human-computer relationships."<sup>2</sup>

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My first encounters with electroacoustic music in the early 70's had an apocalyptic effect on what I called 'music'. I have never lost the sense of exhilaration, of awe, at the possibilities that fed into my imagination. I was itching to explore this new sound playground, and for a year worked with analogue and early digital synthesis before setting it aside because at that impressionable stage I felt it wasn't taken seriously by my composition teacher.

The late 80's saw my return to the electroacoustic sphere — now dominated by digital machines and MIDI hookups.

"The basic idea to remember in any MIDI system is to designate one clock-based device as the master, and use all the rest as slaves."<sup>3</sup>

Was I getting into some strange S&M scene? The embarrassed annoyance I had internalised in the 70's upon noticing the crude gender-power jargon (eg plug-male / socket-female ; master OUT / slave IN ) gave way to alienated dismay at the extent to which the language of control, dominance and submission is overtly used to define and to sell digital culture.

"The ..... system is  
..... master and.....  
.....slaves."

"But they're the only terms we've got." "They're only words." "What difference does it make?" were often the responses to my observation.

"The basic idea .....in any ..... system is.  
to designate..... master .. and.....  
.....slaves."

The very terminology seemed to deny the multiple realities, viewpoints and possibilities I had fantasised - yearned for - , with a cheap imitation of the oppressive social system which was selling a war on TV as a computer game; where an arms 'fair' could look "like the inside of a toyshop".<sup>4</sup>

This continuum of symbolism from war zone, to computer game, to music 'consumables', is the explicit face of the intimate economic relationship between the arms industry and almost every 'civilian' technological advance this century.<sup>5</sup> Its fantasies also illustrate men's monopoly of the areas of design, marketing, installation and maintenance.

The term 'imitative synthesis' took on even more ominous dimensions. I was forced to confront the realisation that for women composers, getting our hands on the machines is only the start, because the technology itself embodies the imprint of its male designers and the projects of masculinist culture.\*

The representation of the computer itself is problematic. *Computer users often* speak of themselves and the machine/program as adversaries in a game of seduction, with the space between them conceived as a battleground. *The computer is* the love-object — contrary, *challenging, inviting obsessive play in the privacy* of the studio — only to be discarded for the new, more powerful update when her (sic) 'secret' has been yielded and she is no longer of interest. Outwitted through manipulation, the computer is cast in the role of its operator's 'reflector' - a symbol of power exercised through control. The computer is, metaphorically, feminised.

True — I, too, have been transported on the delicious



obsession with "passionate virtuosity"<sup>6</sup> into that intimate

\* It is important to distinguish between the 'culture of masculinity' and the essentialist idea of 'inherent maleness'. But if we accept that present technological culture expresses and consolidates relations between men, then we must conclude that as a result of these social practices women and men may attach different meanings and values to technology. (see WACJMAN, 1991)

space between my own thoughts and their reflection from the screen and speakers. But I can't compare the experience to "72 hours with the girl of my dreams".<sup>7</sup> In fact, it seems to me that in order to indulge in a satisfactory relationship with even the most interactive of programs, it is necessary to develop a certain kind of non-interactive relationship with the rest of the world (and who's going to look after the kids?). I have heard several of my colleagues state that they would rather work with machines than with live musicians — fewer arguments and more control (a moot point, anyway!).

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## II. STANDARD OPERATING PROCEDURE

"Definitions belong to the definer, not the defined."<sup>8</sup>

"The.....  
.....one.....the.....  
.....the....."

I soon discovered how frustratingly complicated it is to coax off-the-shelf synthesisers and sequencers into helping me construct flexible, non-'realist' sound worlds. The devices (especially the sample based ones) are designed to most easily facilitate imitative synthesis (to me the most boring of uses) and the re-creation of standard musical formulae. Far from genuinely empowering people to whom musical composition was previously inconceivable, the promised technological 'revolution' offers more of the same, by actually confining musical utterance within narrow, standardised limits.

To effectively circumvent that system (and therefore to influence the culture) requires access to informal 'tech-head' networks and years of hands-on computer experience even before taking more formal courses of study. Most women, including myself, have had limited access to this informal culture of information sharing and play; yet possession of its advantages and willingness to accept its terms are assumed in training courses. The lecturers (rarely women) often seem unaware or unwilling to take on board the fact that their women students are starting from a different place (despite having formal prerequisites) — let alone that they may aim to travel very different paths from many of their male colleagues. In this situation, women students may face both subtle and explicit disadvantage, even censorship.

The realist ethic is also standard operating procedure in the recording domain with its values of clean (chaos-free),

seamless, faithful reproduction, aiming to minimise the interference ('dissent') from 'inappropriate'/unwanted sound sources and to eliminate any sign of recording equipment intervention in the form of colouration, hiss, etc. The technologies and the sounding bodies of the people who played the music are, as far as possible, rendered transparent.

It is beside the point that this transparency may at times be desirable. What is at issue here is the violence of posing a single perspective (the most 'controlled' possible) as more objectively true than all others. This perspective, in its insistence on spatial centrality and hierarchies, is itself an expression of that idea.

I don't think it is coincidental that some of the most engaging challenges to the mono-focal audio norm are now coming from sound artists on radio — an area where women seem to be more visible as producers than in most others.<sup>9</sup>

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III. MACHINES REPLACE BODIES Consider the history of computers : The term 'computer' originally referred to a human operating an adding machine. In the 1950's the British military machine employed large groups of 'computers' (mostly women) in "large scale calculations... in ballistic analysis and other military calculation-intensive operations."<sup>10</sup>

*Military organisers since Frederick the Great have aimed for the minimisation of 'human content' - first organising armies as efficient machines (no 'identities'); then replacing humans with machines; then representing war without bodies.*

The 'computer' is now a machine — the 'female army' concentrated in the sweatshops of Mexico, Korea, Singapore,.... Working under appalling, often hazardous conditions, the women produce essential components for machines most could never hope to purchase, but which we assume the 'right' to have and to use 'because they're there'.

*In early 1989 the producers of 'Les Miserables' wanted to replace the string section of the Sydney orchestra, with synthesisers for the Melbourne season (the Musicicans' Union negotiated to prevent the move).*

Machines appear before me ready-made, with software bearing men's names, sold, installed and maintained by men; machines that would not be available to me without the input of the cheaply bought labour of women's bodies.

It is a myth that women don't participate in audio technologies.



*There are many contexts where, for economic convenience, composers are expected to perform alchemy with a synthesiser to save on labour costs by using imitative synthesis to do a job that could be better performed by a live ensemble. I won't do it.*

Except for a handful of 'big names' (rarely cited in the classroom) women generally 'disappear' from the process at the levels where audio knowledge is seen to be produced...almost as if their working bodies were merely incubators for the conceptions of male creators (a thought which shocks me even as I write it).

Their contribution is rendered invisible because the only area where they are present in large numbers - manufacturing - is subject to the same values which accord low status to other areas of 'women's' or 'unskilled' work.

As a user of this technology, I am placed in a colonising role in relation to those women — whether I like it or not. To me, this means I bear a responsibility to find sensitive ways of speaking it and of using it which don't simply reproduce and thereby validate the perverse world which I have painted here.

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There is more to the question of women's participation in audio technologies than simply allowing it to increase. The world of those technologies, their culture and its institutions is currently modelled upon a certain masculine self image, entrenching values and behaviour damaging to women.

Given that information technology now enters almost every aspect of our lives, it is important that we don't just 'leave it to the boys', but engage with it and use it for our own ends — acknowledging the pleasures and facing the responsibilities with which it challenges us.

However, the basic problem is not *within* women. Ultimately, there must be a sea change in gender/power relations, where men renounce the privileges of a masculinity that derives power from the illusion of control.

Judy Pile 28/9/93

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## NOTES

1. My fanciful compilation of common terms from various sources - including Sony, Opcode, Akai and Fairlight manuals and sales brochures.

2. SOFOULIS, Z. : Hackers or Cyborgs? - Jacking and 'Jilling' into the Matrix paper delivered at 'Sex and Gender

in Techno/Science Worlds Conference, Melbourne University, July 1993 ; p.1

3. RONA J. : MIDI : The Ins. Outs and Thrus; Milwaukee, Wisconsin, 1987; Hal Leonard Books; p.56 (subsequent 'colourations' of this quote are my own — JP)

4. 3JJJ news report, from AIDEX arms fair; Canberra 1991

5. For information and discussion on the military/technology connection in general, see :

BENJAMIN, W. : The Work of Art in the Age of Mechanical Reproduction (1955) transl. Harry Zohn, 1968, in Illuminations; 1968, NY; Harcourt, Brace & World; pp.219-254

VIRILIO, P. : War and Cinema : The Logistics of Perception (1984); transl. Patrick Camiller, 1989; 1989; London; Verso

WACJMAN, J. : Feminism Confronts Technology; 1991; North Sydney; Allen & Unwin; p.164

de LANDA, M. : War in the Age of the Intelligent Machine; 1991; NY; Swerve Editions

6. Quoted in WACJMAN, J. : op.cit., p. 141

7. Ibid.

Wajcman's important book is a comprehensive discussion and overview of feminist discourses around technology in general, powerfully illustrating how "technologies reveal the societies that invent and use them, their notions of social status and distributive justice." (p.166)

8. MORRISON, T. : Beloved; 1987; London; Chatto & Windus

9. This is not to imply that the airwaves have always been accessible to women. It was long argued, for instance, that women's voices sounded tinny on radio and therefore were unsuitable for the medium. This argument failed to take account of voice-microphone design and usage, where bass rolloff was standard practice for preventing booming effects when men's voices were recorded; the practice was also applied to women's voices, where the effect often thinned out the resonance.

10. de LANDA, M. : op.cit. ; p. 41

Also of interest is GROSZ, E. : Writing Our Way into the Picture: Women in the Technological Arts ; in Refractory Girl, no.31/32; May 1989; pp. 17-19

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*Judy Pile is a Melbourne based composer/sound artist who frequently works with music technology. This article will also appear in the summer edition of Sounds Australian.*



# An Interview with Warren Burt - part 2

Stephen Adam

*Part 2 picks up with the continuing discussion of interfaces and sounds of computer music. Our gratitude is extended to Roger Alsop for the initial transcription of this, the second part of the interview from tape.*

WB: One thing is we've got so far to go, the other is there's hardly any distance to go. A lot of really intelligent music (sorry Joel Chadabe for the pun) is available without a lot of the stuff that, for example the clarinet can do. In a lot of cases I hope the instruments get more intelligent, I also hope the people that are working with it do the same. Maybe this is irrelevant, but over the past few days I have been listening to some studies I wrote in 1986. These were microtonal in 19 and 31 tones per octave. I was working with a computer controlling a Serge synthesiser then. I remember at the time being a bit militant saying "This is a filtered square wave and nothing but! No additive synthesis, no nothin' - I'm just working with these very bare tones. I like these bare tones". And listening to them and they're just pretty now.

I played at the 1988 SIMMS conference and in my program note I was quite militant about these simplistic sounds and one of the overseas computer music people said "Well I hate those sounds!" so I said "So what does personal taste have to do with music?"

SA: Well, that leads us on to another question: You often make the listeners role a tough one, for example the non-linear and chaos based pieces from around 1990/91, performed at the ACMA concerts. Here you were controlling the computer which was doing the chaos algorithms which created the sounds. From a listeners point of view they were quite difficult to get into. Is this a consistent philosophical stance that you take or does it vary depending on what you do?

WB: With me, sound type, whether a piece is easy listening or hard listening generally comes about from the philosophical position that originates the piece. A lot of times I write pieces to teach myself how to listen to a particular musical thing, a thing that might be a problem. Nearly all the work I've done with microtonality has been with the aim of training myself how to hear these tunings and exploring aspects of different tunings.

SA: I also wanted to mention the pieces in various Greek modes.

WB: A lot of these are pieces where I trained myself how to listen. Going back to these pieces I wrote in 1986. What amazes me now is that there aren't any issues there,

its simply pretty music. But I realised these pretty pieces may sound completely weird and off the wall to the woman who lives next door. So I've trained myself to listen to them. I've advanced my ear to the point where I now accept that harmony and those ideas, in fact one of the pieces sounds corny to me now. Which I now leave to people as a body of work that they can work on themselves. They can then say "How will I come to terms with this?" They may not actually investigate it in the same way I did. So, yes I do make the listeners role a tough one sometimes. Other times I am embarrassingly, sloppily emotional and proudly so.

The Greek mode pieces in fact, for me, are both educational and emotional. I find the harmonic world of the Greek modes, once one gets into it, to be embarrassingly sloppy and emotional. Take the enharmonic genera in the dorian mode, especially as tuned by Archytas, for example. I agree with Partch's description that once you hear it there's something really primal there, something really deep seated that humans have known for thousands of years. Even if you've never heard it before it hits you really powerfully, I think that scale is really heavily emotionally affective. So I'm quite happy to work with all those emotional connotations. What I'm also doing is picking the notes of that scale, taking a pandiatonic approach, although without all the rules of pandiatonicism as they evolved, simply seeing a seven note mode as a freely combinational set.

Here we're invoking the ancient Greeks who were number nuts any way, so why not use a chaos equation to pick the notes. Its a particularly perverse combination of Mandelbrot and Archytas that I think the Greeks would have got a little tickle out of.

SA: At the same time, it may serve to obscure the results of those individual processes if you were applying chaos to what is already a difficult tuning system for Western normalised ears.

WB: I don't think there are Western normalised ears any more. Kenneth Gaburo and I were talking one day and I mentioned the term 'common practice tonality'. He said "I reject the term 'common practice tonality', where is there 'common practice tonality'? In the thirty two piano sonatas of Beethoven, for example.." (this is him talking) "I went through the thirty two piano sonatas a while ago and I couldn't find a similar harmonic world in any one of them. Each one was a completely distinct way of thinking about harmony. So I didn't see any common harmonic practise in the thirty two piano sonatas of Beethoven". I don't see that the common listener exists any more, if he does he's probably listening to Michael Jackson these days.

SA: I guess that a significant proportion of music is essentially based on equal temperament, this is what I meant by 'the Western tuned ear'.



WB: But then a significant proportion of the music we hear isn't in equal temperament. Anybody who's listening to 'The Nightly Planet' on Radio National, any body who sings in the Astra Choir with no accompaniment is actually not hearing equal temperament. Anybody who hears a string quartet generally doesn't hear equal temperament.

I actually am amazed at how easy it is to learn to hear things. I just did a little study work using woodwind quintet samples, simply because I like that sound, and I came up with this crazy idea for a tuning system that has nothing to do with just intonation. It was a series of tunings simply based on an arbitrary permutation system and I thought "lets see what it sounds like, lets work through it and see if I can learn to hear these tunings". In the first two days I was working with this it was pretty strange, but by the third day I was able to predict what the next tuning was going to sound like in this succession of tunings. I went "Wow, I've actually learned the ins and outs of this tuning in three days!" For somebody who thought he was functionally tone deaf back in first year harmony, I think that's pretty good.

To paraphrase what Jim Tenney said in an interview in the 'Composer's Forum Newsletter' "We as a species (we have to look at the individual members of the species) are developing these fantastic perceptual discriminatory abilities with our ears. The irony is that this is happening right at the time we are all going deaf from noise pollution".

SA: Let's take the issue of perception, noise and our environment. The issue of environmental sound as a musical resource, not simply in terms of environmental sound but as something that evolves from the notion of musique concrète; the British and French perspective of spectro-morphology, for want of a better description

WB: And Californian.

SA: From my perception it seems a much more European phenomenon.

WB: Don't forget the phase vocoder came out of California, it was developed at UC San Diego. It came out of the thinking of people like Roger Reynolds and, more importantly, Robert Erikson who had been talking about that sort of thing for years. A lot of thinking was also going on at Stanford about organising timbre - and don't forget IRCAM's first nickname was 'Stanford-on-the-Seine'.

I've been associated for many years with David Dunn, the American composer who's been working very heavily with the idea of music and environmental sound as a musical language and that there is a big connection between music, language and environment. It's in my genetic material, practically, dealing with sound like that.

Of the two pieces I'm doing now, one uses a lot of samples of found sounds, the other is using frequency modulated analogue electronics. In both cases, especially after the recent work I've been doing with microtonality (mentioned above), I find it a complete joy to work with stuff where the concept of pitch is irrelevant. The most relevance pitch organisation has in this piece is that I don't want the sample to be at the same pitch each time I trigger it off, so I let the 'Lightning' make a random decision that it will be within a major third up and down. That's the most pitch thinking I'm doing in terms of the piece. I found it enormously liberating to then just work with sound as a plastic thing, like lumps of clay that you are pushing or pulling and improvising with all like these very Xenakis like complex morphologies which in themselves have interest.

And after I do that for a while, I get really bugged and want to work with something quantifiable that you can publish in the old style Perspectives of New Music, so I can get my respectability rocks off. Then I go back into this really intense work in tunings and so on, and then I say "All these notes are just so constricted and constipated I just have to play with SOOUUND again!" I seem to have this oscillation between loving pitch organisation because I'm a romantic slop head and then not loving it.

SA: There seems to be a real unbridgeable gap. It struck me that if the primary organisation is one that is oriented towards aspects of the sound rather than aspects of the pitch/duration considerations then somehow they don't intimately relate or that you have to switch your mode of thinking in these things.

WB: There are very few pieces that actually bridge it adroitly. I'd say some of Trevor Wishart's stuff bridges the gap, but Trevor comes at it from an anti-pitch-lattice point of view, in fact one criticism of the university is that no matter how hip universities become, all the knowledge they're dealing with, all the respectability they confer with knowledge, is to deal with stuff that is quantifiable. It's like "Yes you can improvise in the improv lab all year kids, but at the end of the year we've got to give you an exam so that we can put a number on you." and that's how universities give their imprimatur. Respectability is through quantification. And western music has been stuck with that for years, with notation. We look with enormous envy at the science world where something can be proven. The thing I point out is that scientific experiment is something where there is something that can be proven at the end, yes it's right, no it's wrong. A musical experiment can not by definition work that way because you are simply relying on peoples personal opinions. And that's going to be different for every single person. So with the musical experiment, or an artistic experiment of any sort, you put a stimulus out there to see what the reaction is or to see how we can deal with it, or how we can process it, or, or, or. But in the end it's not quantifiable and it's not verifiable, it's simply your own subjective judgement. There are critics and philosophers



of science who will say that that's what happens in science as well

SA: You've pointed out more than once you prefer the sound of an orchestral recording rather than the real sound. Would you say something about that.

WB: There's probably two reasons for that: one is that I generally have a hard time in crowds. For someone who's politically conscious that makes it difficult to be in demonstrations, but I just have a hard time in crowds. I also have a bad attitude towards establishments. So to go to the Melbourne Concert Hall and to sit with a thousand other people to hear the MSO, before the sound even happens already I have two strikes against me. I feel uncomfortable in a crowd like that, I'd much rather make music in a room with thirty people, so there goes my financial viability. I feel much happier in a smaller room and the Melbourne Concert Hall irritates me just from what it stands for politically. Then the sound happens, whenever I go I'm sucked in by it, it's glorious.

But if I'm at home listening on that little radio with its one and a half inch loudspeaker the sound may be 'verifiably lousy' but somehow I feel more comfortable. It's also because I'm a child of the phonograph. I came out of a lower middle class family in the States and I was just hearing music on records from my earliest days. When I was six years old my father bought the Reader's Digest Collection of Great Classical music and the record I wore out by the time I was eight was the "Rite of Spring". I saw Fantasia and it was the dinosaur music.

I must have been twelve or so before I actually saw an orchestra live. I must say I did have a privileged childhood because of the area we lived in. In the summer we had both the Boston Symphony and the Philadelphia orchestra in residence near where we lived, so from the age of twelve to about twenty I saw ten concerts by the New York City Ballet every summer. I would see three or four Boston Symphony concerts, three or four Philadelphia concerts every summer and by the time I left university I'd seen every single Stravinsky/Balanchine collaboration. It was a rich environment to live in.

Even so it was like going up to the Saratoga Performing Arts Centre and sitting in that damp, clammy New York summer night and looking at the New York City Ballet from row EEE, 500 yards back and suddenly there's a video tape.

Another thing is I like intimacy. When I was a student I had various sorts of student assistant jobs that generally involved concert managing of various sorts. I found if my friends didn't mind when they were rehearsing chamber music, my favourite place to listen to it was on the floor underneath the grand piano. I remember Schubert's Trout quintet came alive for me when I was lying under the grand piano one day.

SA: It would be a great place to listen to it.

WB: I wasn't a performer in those ensembles but it was the way I could get physically into the music. Being twenty yards back was like "huh!?"

For me there is that certain level of liveness to the sound, it's not volume, but a certain level of liveness from being in a small room or close to the source. When I go to straight concerts I often try to sit right up front, just to get close enough so that I can be physically moved by the sound. One of the great twentieth century composers, and I forget which one it is, has this expression that 'we are moved by the sound but we do not vibrate with it.' In order for a meaningful emotional experience to happen we have to vibrate with it, and that really does involve getting close enough to it. There's a certain physical distance that we establish, like we're sitting maybe ten feet apart and we feel comfortable with each other. If I were to get up, walk across the room and speak into your face two inches away would be a violation, but if I were three rooms away we would not be able to feel that energy.

SA: Does that relate in any way to focus and detail of the sound?

WB: Yeah, I think so.

SA: So that there's a happy medium between the close miking, if you like, and miking from a terrible distance.

WB: I saw Brigid Burke do a lovely concert at the Box Hill library. I was seated in the front row maybe fifteen feet away from her in a very small, lovely, glass enclosed indoor courtyard space. I wasn't close enough to her so that I could hear every little key click but I was close enough so that her actual physical aura of energy was communicating as well as the sound.

Even computer music is an incredibly physical art. In one of the articles in my book I talk about how tape music is an incredibly physical medium, it's just that because nobody's there and you don't see body language, you actually have to structure the environment so that the physicality of the sounds can actually come out. I've never actually done the European acousmonium thing, the orchestra of loud speakers, I'd like to try it some day, but even just two loud speakers in a room, if the room is arranged right and the loud speakers are arranged right and you're sympathetic about setting up the environment, you can get that environment where the physicality of the sound actually makes its impact.

SA: A few questions on performance interface. You have worked with a variety of unusual performance interfaces. Some that come to mind and that you have mentioned are the 3DIS, the Lightning and so forth. Do you have a favourite and, if so, why?



WB: These days I'm really partial to the fluorescent pink mouse cover that I have. No, I don't think that I do have a favourite. Using particular interfaces comes about through a number of things, one is simply the availability of the hardware; another is financial, of course; and another is just working with things, what becomes available. For example, for a long time I was very happy just playing a non touch sensitive piano style keyboard triggering off samples, I still like to do that. That only became weird for me when I saw somebody else doing it, Julian Knowles in fact, and I was loving the music he was doing but I couldn't relate to what he was doing physically at all. It was like "Oh!, that's right! We're trained to look at this keyboard in one way and it's just not happening that way".

Basically, the more tools and toys the better. Some will be useful for my purposes and some won't. For example, I've seen the virtual reality costume at RMIT, where I'm now doing this residency, and with no insult to anybody who's working with it at the moment, I think people will do fine things with it, but at the moment I'm not interested in working with it. The idea of putting ten pounds of gear on my head so that I can walk around looking like I'm disoriented strikes me as being not useful for me at the moment in that I don't think it's developed enough. Whereas a simple theremin running through a really inadequate pitch to MIDI converter suited me down to the ground for an installation I did last November. There may be a little inverse snobbery here. Kenneth Gaburo often didn't work with a technology until it was obsolete. He started his first modular Moog synthesiser pieces in 1983, and they're quite lovely. One of his last pieces is 'Hiss', a tape piece made exclusively out of tape hiss and ring-modulated tape hiss. Obviously I didn't speak to him about this when he was dying but I can guess his rationale which is "OK we've got digital recording now and it can make a really silent recording, but you'll never get rid of noise, it's inherent". As Ron Nagorka says "The essence of electronic media is distortion". It's always going to distort in some way, sociologically or whatever. But, "Analogue tape is a thing of the past. Ah, now it's the perfect material for me" - Gaburo would think - "to work with".

I found I was very happy for a while with a computer keyboard. I did a whole bunch of pieces using just the computer keyboard or just keyboard and mouse. That then gets down to theatrics. When I'm using the mouse I'm indulging in what I call the theatre of small gestures. Larry Polansky, on the other hand, when he performs with the mouse, moves all over the place. I think the question here is 'How much of a ham are you?'

SA: Is there anything else you want to deal with?

WB: The only other thing to add is a quote from Chris Mann "The problem with success is that it is not bourgeois enough." That is to say ... Suddenly you get a rather largish grant and people say "Oh!, you're a success and

you've made it!" and you say "Gee, yeah, that's right, I'm making as much now as a primary school teacher would make in their first year out of university and I've been in the game for twenty-five years.

SA: It's a mugs game.

WB: Yeah. If we were in it for the money we wouldn't be in this game so we accept that. Financially, the rewards aren't going to be there for a while. You won't starve to death but you aren't going to get rich either. On the other hand it would be nice if some of the other rewards were there as well. One of the things I say is that in Australia you don't get rich, you don't really get famous, you don't get a sense of cultural power. It's like almost anything that would make a European or an American want to do it doesn't exist here and so you're really thrown back on your own resources. I think as an artistic community we have to be much more loving and much more forgiving with each other because we're the only ones that care about us and the only ones that can give ourselves the emotional support needed. Whenever an Australian goes overseas and does their artistic thing these days generally there is this incredible flowering because, for the first time, people are going "Oh!, you're an artist. Gee, that's interesting, what a good thing to do." In fact I almost prefer living in Australia to Europe because after all these years I find it hard to accept people liking me for what I do. I say that with a laugh, of course.

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#### NEW ADDRESS FOR STP AND CMJ

Hello,

Computer Music Journal, The Nomad Group, and Stephen Pope have all moved north a bit from Palo Alto to Berkeley. The new references for all of us are:

Stephen Travis Pope  
1635 Scenic Ave. #5  
Berkeley, California 94709 USA  
Tel: (510) 644-3881  
Electronic mail: stp@CNMAT.Berkeley.edu

Computer Music Journal  
The Nomad Group Software Consulting  
P. O. Box 9496  
Berkeley, California 94709 USA  
Tel: (510) 644-3881  
Electronic mail: cmj@CNMAT.Berkeley.edu

Please update you records where appropriate to reflect this change. I look forward to hearing from you!



## Music and the machine

Peter McCallum

Sydney Conservatorium of Music

E-mail: petermc@extro.su.oz.au

*The following article by ACMA member and music critic Peter McCallum appeared in the Sydney Morning Herald on Wednesday July 14, 1993 following our highly successful inaugural National computer music symposium entitled CompMusic '93. See the editorial news page for more information about this event.*

A brave new world or nerds making funny noises with PCs? PETER MCCALLUM reports on computer music.

Last Saturday, the Australian Computer Music Association held its first Sydney-based conference, CompMusic '93, at Wesley College at the University of Sydney. I went along for two reasons.

First, I wanted to see where this exponentially expanding discipline was at. Secondly, and more immediately, I was invited by the conference convener, Dr Gordon Monro, to a panel discussion, - 'Where is the music in computer music?', (prompted by a concern that technology was being over-emphasised in the discipline).

Given the ability of computer music to influence our lives, Monro's concern was timely. The advent of the computer as a musical tool has the potential to raise profound questions about the nature of music and human interaction with it.

It challenges and reshapes many of the traditional demarcations of musical life, so that distinctions between composer and performer, composer and instrument, instrument and piece, composer and piece, are sometimes blurred. Moreover, listening to music produced by machines often challenges traditional musical categories of pitch, harmony, rhythm and melody.

I remember hearing this graphically illustrated in an early pre-computer work by Stockhausen, *Kontakte* (1960), where a high pitched note dramatically spirals down to a low lawnmower-like growl which then splutters into individual pulses so that what started as a pitch ends up as a rhythm. These challenges are at once liberating and confronting. What effect will all this have on the music of the future and on the rituals by which we create and receive it? The arrival of cheap digital computers has also superseded an old ideological division within the area of electronic music itself between synthesised electronic music, where the sounds are generated electronically, and so-called "musique concrète", developed by the French composer Pierre Schaeffer, which manipulates recorded "real" sounds.

Synthesised sound offered the possibility of liberation

from what was naturally available but the sounds were often perceived as cold and uninteresting. "Concrète" sounds had the natural complexity the ear seems to like, but were more inflexible and also, sometimes, brought unwanted real-life associations. Today the ability to "sample real sounds and convert them into the same digital code as synthesised sounds (and the same code used on your CD player, for that matter) has effectively meant the end of this distinction. Few pieces rely exclusively on one source or the other.

It is, perhaps, symptomatic of a new discipline that the papers at CompMusic '93 tended to focus on techniques rather than the aesthetics of computer music. Two papers (Gordon Monro, University of Sydney, and Jeff Pressing/Chris Scallan, La Trobe University) dealt with lagged embedding—a new technique of sound manipulation.

Two others (Tim Kreger, ANU, and Richard Orton, University of York) dealt with computer-based composition tools. Kreger adapted RNA/DNA relationships described in Douglas Hofstadter's *Gödel, Escher, Bach* to modify melodies "organically", while Orton described a program *Tabula Vigilans*, developed at the University of York.

There were three papers on the analysis of computer and non-computer music (Thomas Stainsby and David Hirst of La Trobe University and Nigel Netheim of the University of NSW) and two on instrumental timbre (Robert Bell, La Trobe University, and Linda Ceff, University of Melbourne).

Jeff Pressing (La Trobe University) described a new program, *Transcribe*, for automatic notation of recorded music, while Brian Henderson-Sellers (University of NSW) spoke about some subtleties of the widely acclaimed and increasingly widely used music software *MAX*, developed by the computer music gurus Puckette and Zicarelli. Pressing also spoke about his symphony, *Zalankara* for Western orchestra, multicultural orchestra and electronic orchestra which, for practical reasons remains unperformed. Greg Schiemer discussed his use of local area network technology to provide interactive improvisation possibilities for performers. Schiemer, Pressing and young composer Steve Adam will all take their music to International Computer Music in Tokyo this year, along with papers by Monro, Scallan, Stainsby, Lawrence and Dicker.

But, if the conference itself focused on bits and bytes, the event came alive in the evening concerts in the Old Darlington School. The pieces which struck me most were *Pyrotechnica* by Melbourne-based Steve Adam and Ian Fredericks's beautiful and now classic piece *Sunrise*, written on the occasion of the presentation of a Fairlight music computer by the NSW government to China.

There was also intriguing sonic interest in *A Vocalise* for



*Einstein* by John Rimmer, Laurence Harvey's meditative *Krotale* and Roger Dean's *Silent Nuraghi*. Two of the works which stayed more in the "concrete" side, with an element of political engagement were David Hirst's *Colonies*, dealing with the invasion of Timor and Linda Ceff's eclectic *I Don't Wanna Drink with Misogynists*.

Greg Schiemer's interactive *Spectral Dance* and Graeme Gerrard's *Think Out Loud* were the only pieces with any performance element. Schiemer's works involved him swinging a high-tech piece of Tupperware around to nudge his interactive program into its next phase, while Gerrard's piece, an intelligent meditation on human thought, reached listeners via four loudspeakers swung from four chairs at the four corners of the hall.

Brave new world or computer nerds making funny noises on PCs? This conference suggested more the former than the latter. The Australian Computer Music Association can be contacted at PO Box 186, Post Office Agency LA TROBE UNIVERSITY, Bundoora 3083.

## ACMA Annual General Meeting

8.00 pm  
Tuesday November 9th

Room A222  
Arts Education Building  
University of Melbourne  
Cnr. Swanston and Grattan  
Streets  
Carlton, Victoria

All Members are encouraged to attend!

*See proxy and nomination forms at the  
back of this issue*

## NMA PRIZE for Music and Writing

### Purpose:

The purpose of the prize is to encourage originality in musical thought and to promote the relationship between theory and practice.

### Eligibility:

The prize is open to Australian residents who submit:  
a. an original musical work; and  
b. a publishable article relating to the work.  
(A broad interpretation of 'work' and 'article' applies)

### Value:

The value of the prize is \$100.00  
The article relating to the work will be considered for publication by *Sounds Australian*.  
The score will be considered for inclusion by the Australian Music Centre.

### Assessment:

Assessment for the prize will be made by the La Trobe University Music Department.

### Introduction and Frequency:

The first prize will be made in 1993 and annually thereafter. However the Music Department shall have the discretion to withhold the prize in any year if it considers there was a lack of suitable entries.

### Submission Date:

Entries for the prize must be submitted before 1 November 1993.

### Submission Address:

NMA Prize  
Department of Music  
La Trobe University



## THE NETWORK NEWS

A mailing list called oz-computer-music has been setup at La Trobe University. By subscribing to this list (at no cost) you automatically receive messages posted by other members of the list, and you can post messages of your own. Thus this functions as a discussion medium - pertaining to Australian Computer Music in general, or any other more specialised interest.

To access oz-computer-music you need access to the Internet by some means (See the information below on APANA if you aren't attached to an Institution). To subscribe to oz-computer-music, send the following email message to: `listserv@latrobe.edu.au`  
`subscribe oz-computer-music`

To mail your item (which will be broadcast to every list subscriber) send an ordinary email message to:

`oz-computer-music@latrobe.edu.au`

To unsubscribe, send the following message to: `listserv@latrobe.edu.au`

`unsubscribe oz-computer-music`

For queries contact David Hirst at:

`dhirst@farben.latrobe.edu.au`

Also, an ftp site for music software has been set up at La Trobe University for music software, it is:

`ftp.latrobe.edu.au`

The music directory is:

`/pub/music`

log on with user name "anonymous" and password your email address.

Queries: `dhirst@farben.latrobe.edu.au` <DAVID HIRST>

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## A P A N A

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### \* What is APANA?

APANA is the Australian Public Access Network Association, Incorporated, a not-for-profit organisation. APANA runs a non-commercial network of computers around Australia. Machines in this network range from dial-in BBSs and UNIX hosts to personal Amiga/IBM/Mac PCs using stand-alone messaging software, all running from members' homes.

### \* What are its aims?

To give members access, in the form of news and mail, to the major networks that Australia and the world participate in - AARNet and the Internet respectively. Members access these services either interactively, by logging onto a BBS or similar, or by using an automatic offline batching scheme based around a system known as UUCP. In addition to external traffic APANA has its own internal

mail and special-interest news groups. Our ultimate aim is to provide direct Internet access (e.g. telnet, ftp, talk) to all members.

### \* How does APANA work?

APANA is an affiliate member of AARNet, the Australian Academic and Research Network; mail and news passing between APANA's internal network and the rest of the world is transferred over AARNet, itself a part of the global Internet. APANA runs a permanent 19200 bps link between a cluster of Melbourne APANA machines and an Internet machine at The University of Melbourne. This provides APANA with a fast, reliable connection to the rest of Australia and the world. Mail and news arriving at any machine in this cluster is reliably transferred onto the Internet within minutes of being received. Interactive Internet services such as telnet and ftp are presently unavailable. The APANA network includes hub sites in most states that either have dial-up access to a site in the Melbourne cluster or connect to a local university. Other members typically have their machines automatically dial up and connect to the regional hub machine. Members are also welcome to permanently connect into our Melbourne internet-based cluster (or to start their own in other regions!) - this requires an investment in two phone lines (one for each end of the link into the cluster) and two modems, plus an Internet Protocol capable computer (typically a UNIX box or a PC running NetBSD or Linux).

### \* Connection protocols.

The network is linked using UUCP, SLIP and PPP. UUCP is a protocol that was originally designed for use with UNIX. It is now available in various forms for Amiga, IBM and Macintosh machines. UUCP usually operates on a dial-up basis by sending batches of news articles and mail from one site to another - in this case between your \_feed\_ site and your machine. UUCP isn't too hard to setup and there are plenty of people in APANA who have done it before so if you need help, just ask. SLIP (Serial Link Internet Protocol) and PPP (Point-to-Point Protocol) are both means of transporting IP (Internet Protocol) packets over serial lines, including modem-based permanent links. The Melbourne cluster of IP-linked machines is connected using SLIP and PPP.

### \* Seeing the network in action?

A good starting place is the interactively accessible machines that are part of APANA. Trust plays a big part in any network - remember this and it will save you from \_bad press\_ in the future. All you need to access these machines is a computer, modem and some communications software. Additionally, to use the APANA network on these machines you are required to join APANA as an affiliate member and thus accept our rules and non-commercial orientation. The specifics of becoming an affiliate member can be obtained once you have dialled up one of these systems.



**Current interactive-access machines include:**

Adelaide			modem
cswamp	Arthur Marsh	FredGate/PC	08 370 2133
cumquat	Tony Sander	Waffle	08 287 1938
hal9000	Mike Bruins	AmigaUUCP	08 371 2343

Geelong			
vortex	Mark Gregson	UNIX	052 23 1671

Melbourne			
brimston	Justin Deeley		03 584 8590
guru	G. Seremetidis	DLG	03 326 0440
werple	Andrew Herbert	NetBSD	03 888 1726
zikzak	Zik Saleeba	UNIX	03 562 8814

Newcastle			
scorch	Michael Brown	XENIX	049 62 1783

Sydney			
arc	John Paul Lonie	DLG	02 949 1224
lsupoz	Anthony Rumble	Linux	02 418 8750
pos	Mark Purcell	Waffle	02 283 5598
sleeper	Matthew Geier	UNIX	02 718 6996 (ringback)

**\*What will you need to add your machine into the APANA network?**

If you would like to join the APANA network, you simply need:

- \* a computer
- \* a hard disk (for the UUCP software, plus mail/news spooling)
- \* a modem
- \* to be acting as an individual, not on behalf of an organisation or company, and not for commercial purposes
- \* to join APANA :-)

APANA can provide high quality public-domain UUCP, mail and news software for most types of computer, including Amigas, PCs running MS-DOS or OS/2, and Macs. We can also assist in configuring UUCP on UNIX (or NetBSD/Linux) systems.

**\* Fees.**

APANA is not-for-profit, so the cost to members is as low as possible. If you run a personal system, regularly calling a hub machine, your main ongoing cost will be your phone bills. If you are connecting to an interactive-access site you may find that the member running the system asks for a donation (maybe for improved access/or time slice) to offset their own expenses. There is a clear distinction between donation and profit; neither APANA nor its members operate for profit. The only fee levied on members is an annual membership fee of \$55, although extra donations are always appreciated (and are especially encouraged from members running interactive-access sites - generally at least another \$100). Virtually all of APANA's revenue (e.g. membership fees) goes towards providing our network services, by paying AARNet each year to maintain our affiliate membership

status. A once-off joining fee of \$25 also applies.

**\* Actually Joining!**

If you would like to join APANA, please get in touch with the closest regional contact (listed below), or mail APANA at the following address:

APANA  
P.O. Box 782  
Mount Waverley  
Victoria 3149

We will then mail you a membership kit, including membership information and an application form. We can also provide free, pre-configured UUCP software for Amigas, IBM PCs and Macs, plus assistance in setting up UNIX hosts - further details are included in the membership kit, or have a chat to your regional contact.

**\* Regional contacts:**

Adelaide  
Mark Newton [m.newton@apana.org.au](mailto:m.newton@apana.org.au)  
08 322 4071 (H), 08 352 6055 (W)

Brisbane [Brisnet - an affiliated organisation]  
Rhys Weatherley [rhys@cs.uq.oz.au](mailto:rhys@cs.uq.oz.au)  
07 279 2338 (H), 07 365 1657 (W)

Canberra  
Jeff Coleman [j.coleman@apana.org.au](mailto:j.coleman@apana.org.au)

Geelong  
Mark Gregson [m.gregson@apana.org.au](mailto:m.gregson@apana.org.au)

Melbourne  
Nick Langmaid [n.langmaid@apana.org.au](mailto:n.langmaid@apana.org.au)  
03 336 3228 (H), 03 204 7399 (W)

Newcastle  
Michael Brown [m.brown@apana.org.au](mailto:m.brown@apana.org.au)

Sydney  
Anthony Rumble [a.rumble@apana.org.au](mailto:a.rumble@apana.org.au)  
02 418 8220 (H)

Or mail APANA and ask for an information kit or further details:

Propaganda department  
APANA P.O. Box 782  
Mount Waverley Victoria 3149

**\* Office-bearers:**

President:	Andrew Herbert <a.herbert@apana.org.au>
Vice-president:	David Keegel <d.keegel@apana.org.au>
Secretary:	Nick Langmaid <n.langmaid@apana.org.au>
Treasurer:	Felicity Jones <f.jones@apana.org.au>



## **APANA network Acceptable-Use Policy**

### **1. [APANA network]**

The APANA network (the Network) is a private telecommunications network owned and operated by the members of the Australian Public Access Network Association, Incorporated (APANA) under the control of the APANA Management Committee (the Committee) as a common service provided for the members of APANA

### **.2. [Function of the APANA network]**

The primary function of the Network is to support the free transfer of information to and from APANA members, subject to the terms of this policy.

### **3. [Acceptable Use]**

Traffic to and/or from members of APANA is considered acceptable use of the Network.

### **4. [Traffic to/from Attached Networks]**

Traffic originating from or entering attached networks must meet both this policy and the acceptable use policies of those networks. As effective capacity between attached networks may be limited, the Committee may from time to time publish guidelines on acceptable traffic volumes between the APANA network and such other networks.

### **5. [Commercial use as Unacceptable]**

The use of the Network for any form of commercial activity is not acceptable.

### **6. [Use by third-parties as Unacceptable]**

Use of the Network by non-APANA members is not acceptable.

### **7. [Illegal Use as Unacceptable]**

APANA facilities cannot be used by any individual or group of persons for any activities of an illegal or fraudulent nature, including any activities prohibited under the Australian Commonwealth Government Telecommunications Act 1989, or under other applicable Australian State and Commonwealth laws.

## **Notes**

A.1 The Committee shall be the sole arbiter of the interpretation of this policy

A.2 APANA network sites may log traffic propagation details for the purpose of generating network usage summaries and possible examination by the Committee.

A.3 The Committee reserves the right to act in any appropriate manner, where there are reasonable grounds for believing that unacceptable usage is occurring or has occurred in the past.

## **X CIM:**

### **X Colloquium on Musical Informatics advanced program**

**Milan, December, 2-4, 1993**

A.I.M.I - Associazione di Informatica Musicale Italiana & L.I.M. - Laboratorio di Informatica Musicale Dipartimento di Scienze dell'Informazione Università degli Studi di Milano

#### **X CIM IS SPONSORED BY:**

Consiglio Nazionale delle Ricerche,  
Comitato Scienze e Tecnologie dell'Informazione e Progetto Finalizzato "Sistemi Informatici e Calcolo Parallelo"

Civica Scuola di Musica, Comune di Milano

IEEE Computer Society Task Force on Computer Generated Music &

North Italy Section SiliconGraphics, Computer System

#### **X CIM COMMITTEES**

##### **SCIENTIFIC COMMITTEE**

Mario Baroni (University of Bologna)

Antonio Camurri (University of Genova)

Jacques Chareyron (University of Milano)

Giovanni De Poli (University of Padova)

Goffredo Hzus (University of Milano)

Aldo Piccialli (University of Napoli)

Sylviane Sapir (IRIS)

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Mauro Graziani (University of Padova)

Alessandro Melchiorre (Civic Music School of Milano)

Angelo Paccagnini (University of Milano)

Nicola Sani (RAI-SAT)

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Goffredo Haus

Angelo Paccagnini

Isabella Pighi

Dante Tanzi

##### **PROCEEDINGS EDITORS**

Goffredo Haus

Isabella Pighi

##### **INTRODUCTION TO THE X C.I.M.**

The Colloquium on Musical Informatics is an international biennial meeting of researchers in computer applications to music, organised by the Italian Association of Musical Informatics and by local partners. Previous editions (held in Pisa, Milano, Padova, Pisa, Ancona, Napoli, Roma, Cagliari, Genova) showed an increasing interest in this area, proved by the number and the quality of scientific contributions and the appearance of computer music



systems providing tools for new aesthetic solutions. Special topics of this edition are:- standards in computer generated music; a tutorial and a panel sponsored by the IEEE Computer Society Task Force on Computer Generated Music will take place; - relationships between musical informatics and hypermedia systems. Scientific sessions include the following topics:

- digital signal processing;
- neural nets;
- music theory, analysis and musicology;
- computer music workstations;
- miscellaneous.

The discussion of research results will be organized as paper, poster and demo presentations, depending on the peculiar characteristics of the works. Music sessions include both human and mechanical executions. The official languages of the Colloquium are English and Italian. Proceedings will be available at the Colloquium. Welcome to the X Colloquium on Musical Informatics!

## PAPERS

### SIGNAL PROCESSING

- A. Chandra -- Counterwave. A program for controlling degrees of independence between simultaneously changing waveforms.
- A. Discipio, G. Tisato -- Granular synthesis with interactive computer music system.
- A. Pellecchia, A. de Vitis -- Sintesi Polare: applicazioni in campo musicale di filtri digitali operanti al limite della stabilit .
- A. Piccialli, S. Cavaliere, I. Ortosecco -- Analysis, synthesis and modification of pseudoperiodic sound signals by means of pitch synchronous techniques.
- D. Rocchesso -- Multiple feedback delay networks for sound processing.
- D. Rocchesso, F. Turra -- A real time clarinet model on MARS workstation.

### NEURAL NETS

- G. U. Battel, R. Bresin, G. De Poli, A. Vidolin -- Automatic performance of musical scores by mean of neural networks: evaluation with listening tests.
- G. De Poli, P. Prandoni, P. Tonella -- Timbre clustering by self-organizing neural networks.
- M. Johnson -- Neural networks and style analysis: a neural network that recognizes Bach chorale style.
- P. Toiviainen -- Modelling harmony - based Jazz improvisation: an artificial neural network approach.

### MUSIC THEORY, ANALYSIS & MUSICOLOGY

- M. Baroni, L. Finarelli -- Alcune osservazioni sulla esecuzione della Quinta Sinfonia di Beethoven.
- L. Camilleri, F. Carreras, F. Giomi -- Sistemi esperti in musicologia: un prototipo per l'analisi TIME-SPAN reduction.
- A. De Matteis, G. Haus -- Formalizzazione di strutture generative all'interno de "La sagra della primavera".
- D. R. Keane, L. L. Cuddy, C. A. Lunney, J. Dufton -- The perception of musical structure and time.

S. Sargenti -- Definizione di Reti di Petri per l'analisi della musica elettroacustica.

N. Zahler -- The compositional process and technological tools: an appraisal of algorithmic composition as it relates to compositional process.

## IMW

- A. Camurri, A. Cartoncini, M. Frixione, C. Innocenti, A. Massari, R. Zaccaria -- Toward a cognitive model for representation and reasoning on music and multimedia Knowledge.
- J. Chareyron, D. Rizzi -- Due ambienti sperimentali dedicati alla sintesi LASy.
- G. Haus, A. Sametti -- L'ambiente per l'analisi/re-sintesi di partiture della "Stazione di Lavoro Musicale Intelligente".
- C. Massucco, M. Mercurio, G. Palmieri -- Real time processing and performance using WinProcne/HARP.

## MARS

- P. Andrenacci, F. Armani, A. Prestigiacomo, C. Rosati -- APPLI20: a development tool for building MARS application with an easy to use graphical interface.
- R. Bessegato, E. Guarino, E. Maggi -- Celle-funzione per la realizzazione di sistemi musicali elettronici.
- E. Maggi, A. Prestigiacomo -- Portability of the MARS System.

## OTHERS

- A. Camurri, F. Giuffrida, G. Vercelli, R. Zaccaria -- A system for real-time control of human models on stage.
- S. Dubnov, N. Tishby, D. Cohen -- Bispectrum of musical sounds: an auditory perspective.
- M. Leman -- Tone Center Attraction Dynamics An Approach to Schema-Based Tone Center Recognition of Musical Signal.
- C. Lippe -- Real-time Control of Granular Sampling via Nonlinear Processes Using the IRCAM Signal Processing Workstation.
- S. T. Pope and L. E. Fahlin -- The use of 3-D audio in a synthetic environment: an aural renderer for a distributed virtual reality system.

## WORKSTATION DEMOS

- . IMW
- . IRCAM
- . LIMCA
- . MARS

## RESEARCH DEMOS

- A. Belladonna, A. Vidolin -- Applicazione MAX per la simulazione di sorgenti sonore in movimento con dispositivi commerciali a basso costo.
- G. Bertini, D. Fabbri, M. Marani, L. Tarabella -- MUST C 25 - Stazione di lavoro musicale con schede DSP Leonard' C25.
- R. Bresin -- MELODIA: a program for performance rules testing, teaching, and piano scores performing.
- E. Favreau, S. Sapir -- La stazione MARS: dalla



progettazione di algoritmi alla realizzazione di ambienti esecutivi dedicati.

S. Mariuz -- A program for analysis, separation and synthesis of musical signals spectrum.

P. PrIvot, A. Debayeux -- Constraint satisfaction programming in Computer Aided Composition on a highly gestual devoted system, based on a VME- Multi-Processor joining true UNIX and real time.

Z. Settel & C. Lippe -- FFT-based Resynthesis for Real-Time Transformation of Timbre.

#### POSTER SESSIONS

L. Bazzanella, G.B. Debiassi -- Analisi dell'Effetto del Tocco sui Suoni di un Organo a Canne.

A. Bernardi, G. P. Bugna, G. De Poli -- Sound analysis methods based on chaos theory.

G. Bertini, M. Barutti -- Una nuova implementazione della tecnica di sintesi additiva basata sulla FFT inversa.

S. Bettini -- Music 5 Mac 1.0.

A. Camurri -- Il livello cognitivo della STAZIONE DI LAVORO MUSICALE INTELLIGENTE.

P. Dutilleux -- ZKM Report.

A. Doro, A. Vidolin -- Il Sistema Live Electronics del CERM.

B. Fagarazzi, M. Sebastiani -- Using Self-Affine Fractal Coding to Model Musical Sequence.

P. Fischetti -- PC-CMUSIC: Evoluzione del linguaggio CMUSIC per ambiente -- MS-DOS.

L. Gamberini, S. Mosca -- La biblioteca, il computer e la musica.

L. Garau, G. Tedde -- L'attività dell'Associazione Ricercare ed il suo studio per la ricerca musicale e artistica.

G. Haus, I. Pighi -- "Stazione di Lavoro Musicale Intelligente": l'ambiente integrato Macintosh-NeXT.

D. Keane -- Reflections on the MIDI Baton.

N. Larosa, C. Rosati -- MEDUSA: a powerful MIDI processor.

M. Laurson -- PWConstraints.

E. H. Lubej -- A portable Digital Acoustic Workstation in Hi Fi and Ethnomusicological Analysis Program (EMAP).

U. Merlone -- Analisi Statistiche nel Riconoscimento degli Intervalli.

G. Nottoli, M. Giachi -- Alpha Orionis: a Parallel DSP SoundSynthesis/Processing System based on the 'Orion' Chip.

A. Provaglio -- SoundLib 2.0: Una Libreria di Classi C++ per l'Elaborazione di Segnali Audio Campionati.

G. Ramello -- HIPPOPTHAMUS: un Sistema di performance Interattivo.

D. Skrien, J. Hallstrom -- KRAYOLA: a Flexible, Robust and User-Friendly Precompositional Sketching Environment.

L. Tarabella, M. Romboli, G. Bertini -- Le TWIN-TOWERS, un dispositivo per composizioni interattive di computer music.

Proceedings will be available at the

Colloquium.Proceedings fee: Lit 50.000

#### COMPOSITIONS

Ludeger Bruemmer - LA CLOCHE SANS VALLEES.

Luigi Ceccarelli - DOPPIO SOLO.

Fabio Cifariello Ciardi - FINZIONI.

Alessandro Cipriani - VISIBILI.

James Dashow - RECONSTRUCTIONS.

Agostino Di Scipio - ZEITWERK.

Amedeo Gaggiolo, Silvia Din - ANIMALI IN SOFFITTA.

Francesco Galante - METAFONIE.

Francesco Giomi - CHROMATISM.

David Keane - WERVELWIND.

Cort Lippe - MUSIC FOR CLARINET AND ISPW.

Matteo Pennese - IHADA.

#### TUTORIAL

Donald Sloan "Standards in Computer Generated Music" PANEL

(sponsored by IEEE Computer Society Task Force On Computer Generated Music)

"Standards in Computer Generated Music"

chair: Denis Baggi

featuring: Lelio Camilleri, Antonio Camurri, Giovanni De Poli, Goffredo Haus, Margaret Johnson, Stephen Pope, Donald Sloan

#### EVENTS

. A.I.M.I. Annual General Meeting

. Music & Multimedia Performances

Send an application form stating your Name, Job Title, Organisation, and Address to:

Comitato Organizzatore del X Colloquio di Informatica Musicale/c/o L.I.M. - Laboratorio di Informatica Musicale Dipartimento di Scienze dell'Informazione Università degli Studi di Milano via Comelico, 39I-20135 Milano (Italy)  
phone: +39 2 55006.338 / .382 / .380  
(answering machine)  
fax: +39 2 55006.373  
E-mail: MacLim@hermes.mc.dsi.unimi.it

#### INFORMATION FOR HOTEL RESERVATION

It's possible to book in two different ways: Directly:

Mec Hotel via Tito Livio, 420137 Milano

phone: 02.55187075/66/42/83 fax: 02.5456718

All fees are for night and include breakfast:

single room: Lit. 110.000

double room: Lit. 160.000

By travel agency: Play Mondovia Passarella, 420122

Milanophone: 02.76004023

fax: 02.780459

All fees are for night and for person:

First choice: Lit. 190.000

Second choice upper: Lit. 150.000

Second choice: Lit. 135.000

HOW TO GET TO DSI: MM3 (Lodi) + Bus 92MM3 (Crocetta) + Tram 23MM3 (Corvetto) + Bus 84



## 1993 ACMA Membership List

The following is a list of the financial ACMA members for 1993, showing their daytime telephone numbers, areas of interest, and if applicable, their E-mail addresses. This year has seen a terrific boost to the membership rising from 47 last year to around 110 this year. Note that only those members who consented to having their personal details distributed have been included in this list. We hope this will stimulate some productive interaction between members with similar interests.

Stephen Adam	(03) 489 6218	e-mail: <a href="mailto:sadam@klang.latrobe.edu.au">sadam@klang.latrobe.edu.au</a> Synthesis, algorithmic composition, unusual performance controllers
Roger Alsop	(03) 489 1635	e-mail: <a href="mailto:ralso@klang.latrobe.edu.au">ralso@klang.latrobe.edu.au</a> Text production and composition using Max
Andy Arthurs	(07) 675 6274	Atari - Cubase - Akai S1000
Anthony Ash	(03) 306 1233	IBM AT; DSP (TMS 32010); MIDI;
Ros Bandt	(03) 380 2669	Macintosh; 3DIS; Roland S550; Akai; User friendly audience participation systems
Robert Bell	(03) 484 4355	e-mail: <a href="mailto:robbell@klang.latrobe.edu.au">robbell@klang.latrobe.edu.au</a> Macintosh, Vision, ProTools, etc, compsoition/analysis, etc
Ross Bencina	(03) 870 0084	e-mail: <a href="mailto:muscrdb@lux.latrobe.edu.au">muscrdb@lux.latrobe.edu.au</a> DSP, direct synthesis, Csound, Think C
Stephen Benfall	(09) 409 7332	Composition, MT Pro, S900, ESQ1, Atari 1040
Paul John Brosche	(03) 486 1641	Philosophy of Musical composition
Andrew Brown	(03) 344 8721 (W)	e-mail: <a href="mailto:Browna@insted.unimelb.edu.au">Browna@insted.unimelb.edu.au</a> Macintosh, Synthesizer performance, Music education and technology
Warren Burt	(03) 534 4916	IBM, but ecumenical; everything realtime
Steven Campbell	(067) 72 6213	Notation, algorithmic composition, MIDI, sampling - MAX, Finale, Alchemy
Adam H. Chennells	(02) 888 3200	CSound on PC, granular synthesis, Algorithmic composition
Angie Coffey	(03) 859 4850	Composition using Macintosh, Yamaha SY-85, Pro-5, M
Collette Corr	(03) 457 3766	Pro 5 & Cubase1.8.2
Danielle Chiel	(07) 369 8398	Macintosh
David William Crocombe		computer assisted composition
Glenn Davey	(03) 853 2133 (W)	Atari; Notator; JX 3P; D 110; Kawai K1; Drumware
Dr Roger Dean	(02) 550 3560 (W)	Composer-Improviser, Atari; Composers Desktop Project, MIDI instruments, sequencers
Neil Dicker	(03) 427 0664	IBM & SUN music Applications
Peter Donnison	(059) 689 483	Everything
Paul Eng-Yi Tan	(03) 347 2184	
Jim Franklin	(02) 569 9338 (W)	e-mail: <a href="mailto:Jim.Franklin@Music.su.edu.au">Jim.Franklin@Music.su.edu.au</a> Atari 1040 ST; VME 131; live electronic music; interfacing sound and graphics;MIDI
Nigel Frayne	(03) 419 5975	Sound Design
Ian Fredericks	(02) 569 8140	Computer music software, MIDI, Concerts, Direct synthesis, audio hardware, algorithmic composition, teaching comuter music
Graeme Gerrard	(03) 531 6686	Macintosh; synthesis; DSP; Digidesign; HMSL; own software
Dr Hazel Hall	(06) 293 7632 (W)	Macintosh, IBM, Apple
Lawrence Harvey	(03) 387 8474	Macintosh; live performance - computers; electroacoustic digital instruments; sound synthesis; DX7, TX816, TX81Z, S900 Fairlight; Jam, Opcode; FORTH
Ross Hazeldine	(03) 687 7785	MIDI, music notation, algorithmic composition on IBM & Atari
Jason Hellwege	(03) 479 1390	Macintosh, Akai samplers, hard disk recording & editing
Dr. B. Henderson-Sellers	(02) 697 4240	e-mail: <a href="mailto:brianhs@cumulus.csd.unsw.edu.au">brianhs@cumulus.csd.unsw.edu.au</a> Composition using object-oriented techniques
Michael Hewes	(059) 87 1396	Real-time DSP
Jacqueline Hill		Audio engineering
David Hirst	(03) 479 1502 (W)	Macintosh; algorithmic composition; MIDI; DSP
David Hodson	(03) 457 1257	
Anthony Hood	(02) 882 8289 (W)	Atari; live performance electronic music



Robert Hornbuckle	(03) 326 5825	Hard Disk recording, sequencing & production
Tim Humphrey	(03) 380 9329 (W)	
Andrew Ioannou	(03) 435 9221	Composition - MID production, Mastertracks, Cubase on ATari
Mark Ireland	(02) 557 5482	Composition with Fairlight
Jonas James	(03) 562 7205	MIDI guitar applications, hard disk recording, music notation packages
Kaarle Jaaniste	(02) 660 5439	Macintosh
Michael Jed	(07) 848 6395	Signal processing, MIDI, Synthesis, Multitrack recording, Atari, Mac, IBM, Amiga
Andrew Jenkins	(02) 452 1061	Macintosh/Apple IIe; DSP; algorithmic composition; Yamaha DX100 & DSR2000
Herbert Jercher	(03) 312 1104	Apple equipment & software & Atari Applications
Cindy John	(03) 439 6871	Main frame sound synthesis
Malcom John	(052) 739275	Macintosh & IBM
Matt Jones	(09) 3832530	Macintosh, educational software, notation, composition
Stephen Joyce	(03) 386 4487	Macintosh, Sound composition in Films & video, digital recording & manipulation
Stephen Karnaghan	(02) 389 9067	Atari, Notator - variety of compositional styles
Tim Kreger	(06) 249 5642	Composition - genetic algorithms
Guenther Laengst		Composition using Macintosh and ESQ1
Vincent Lamberti	(03) 846 6134	All manners of composition & synthesis, Ensoniq SQ80 & VFX-SD, Kawai K5, Sequential 2002, violin
Rainer Linz	(03) 429 4285 (?)	IBM; music publishing
Joan Livermore	(06) 252 2248 (W)	Mac+; Atari; Apple IIe, Icon; Music Education; Music and Graphics/Video/Film
Peter McCallum	(02) 957 1301	(02) 230 7359 (fax) e-mail: petermc@extro.su.oz.au Compaq IBM PC with DOS/Windows
Terry McDermott	(03) 417 3001	Technology in performance
Dr Gordon Monro	(02) 692 3814	(02) 692 4534 (fax) e-mail: monro_g@maths.su.oz.au music and sound synthesis, MIDI, UNIX machines, Atari ST"
Damian Nailor		
David Nerlich		
David O'Halloran	(08) 231 9037 (W)	e-mail: anat@peg.pegasus.oz.au Macintosh
Stephen O'Hara	(03) 481 0312	Electroacoustic composition
Anne Shirley-Peel	(03) 720 4167	Amiga; notation; sound synthesis
Claudio Pompili	(067) 73 2911	e-mail: cpompili@gara.une.oz Macintosh SE; MIDI
A. Power	(02) 418 7992	
Jeff Pressing	(03) 486 1432	e-mail: jpress@klang.latrobe.edu.au Everything; synthesiser performance; keyboard mapping
Douglas Ray	(03) 489 8258	IBM; real time performance/synthesis/processing/composition; Integrated multitasking MIDI environments
Dennis Remmer	(07) 831 9022 (W)	(07) 832 4041 (fax) e-mail: mail_remmer@uqvx.cc.uq.oz.au Electronic music production & distribution, Ensoniq, Kawai, Roland equipment
Christo von Rensburg	(02) 953 9297	Algorithmic composition, Ethnic music & jazz, MIDI, Disgital sound editing, 486 PC
Donald F Richards	(045) 799254	Composition with Eziscore, Editrack, etc -Atari
Alistair Riddell		Composition, NeXT, Objective-C, Cmix, CMU MIDI Toolkit
John Rimmer	(64) 9 373 5999 Ext 7403	649 373 7446 (fax) Computer Composition
Chris Scallan	(03) 484 1240	DSP Applications in analysis/synthesis
Louis F. Schebeck	(02) 264 5531	MAC II Si
John Schiel		
Greg Schiemer	(02) 230 3747 (W)	Direct audio synthesis, DSP, microcontroller design for MIDI, anything not consumerised
Byron Scullin	(03) 375 4272	Samplers, wind controllers
Leigh Smith	(09) 380 1947 (W)	e-mail: leigh@psychok.dialix.oz.au Real-time perception of performance, interactive systems, MIDI, Carnegie-Mellon MIDI Toolkit
Jim Sosnin	(03) 439 6871	Macintosh; Mainframes; sound synthesis/processing; digital recording



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Sue Speer	(03) 482 1498	Electro-acoustic composition
Thomas Stainsby	(03) 497 4936	e-mail: stainsby@klang.latrobe.edu.au Signal analysis and Cprogramming; composition, studio work and live audio
Darren Steffan	(03) 482 4564	Music technology in music therapy, Macintosh
Tony Suppa		
Jane Walker	(03) 489 1352	Composition, Synthesis, Notation/sequencing
James Ward	(02) 557 2078	e-mail: james@socs.uts.edu.au Macintosh, automated composition
Martin Wesley-Smith	(02) 810 2238	Macintosh; Live computer music; Midibasic; Fairlight Tx81Z DX7 Performer/Composer; Music Publisher
Greg White	(02) 522 9178	All areas, using Mac with MAX, SoundTools, Vision, etc.
Robin Whittle	(03) 459 2889	Digital Audio, DAT; ADC/DAC design, DX7 and analog synths
John M. Williams	(002) 28 1266	Atari 1040 ST; DX7, Roland D110; own software
Amanda Wojtowicz	(002) 217306 (W)	Macintosh; Education; Composition; Interactive Software for Educational use
David Worrall	(06) 239 6986	e-mail: David.Worrall@anu.edu.au Everything; Fairlights; Macintosh; commercial and homegrown software
Achilles Yiangoulli	(03) 367 6750	Macintosh; MIDI Composition/Notation; Sequencing, recording, arranging, copying, synthesis
Robert Zurynski	(02) 439 5577(W)	AI, granular synthesis, MIDI, algorithmic composition
Goulburn College of TAFE Library Canberra School of Music	(062) 46 7832	
Australian Centre for Art and Technology	(08) 231 9037	
Australian and New Zealand Cultural Arts Limited	(03) 434 7640 (03) 434 1291	Music examinations board

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