Note that this document is slightly edited from that on the UC recruitment website, to provide more extensive information for those considering application; for any matters of legal interpretation, the UC website document is to be used. Some web links are available directly from the UC website documents; but the Sonic Communications Research Group page can be accessed via www.canberra.edu.au/vc-forum/SCRG.htm, and is not listed there. Further information about the research and creative work of the Chief Investigator, Roger Dean, is available at www.australysis.com.

POST DOCTORAL RESEARCHER - Sonic Communications/Music

Reference No. 03/2145
$54784 - $64887 pa

ACADEMIC LEVEL B

The University of Canberra currently has new funding available for two Post Doctoral Researchers.

The second position – Ref. No. 03/2145 - is a three year Post Doctoral opportunity funded by a new Australian Research Council grant to Prof. Roger Dean (Team Co-leader), in the newly formed Sonic Communications Research Team, within the 'CMCS' area of research strength listed below. Collaborators are Dr Hazel Smith (UC), and Dr Kate Stevens (UWS). The project concerns the use of computer generation and manipulation of sound to permit assessment of the cognitive accessibility of the resultant musical structures. Details are available from roger.dean@canberra.edu.au, and from the UC website. Post-graduate applicants at the Research Officer level will also be considered for this project.

Areas of Research Strength at the University of Canberra

§ Communication, Media and Cultural Studies (CMCS)
§ Tourism § Education and Innovation
§ Built and Cultural Environments
§ Ecology, Environmental and Earth Sciences
§ Medical and Health Sciences
§ Governance
§ Socio-Economic Policy and Research
§ Information Sciences and Engineering

Closing Date: 23 January 2004

Applications for this position close 23 January, 2004.

(Information available from the UC recruitment website: Please refer to the Information for Applicants and the Position Documentation before applying for this position. Note that applications from non-Australians are extremely welcome, but additional formalities apply. When applying, you *must* print, fill out and attach this cover sheet to your application. Note that the cover sheet is in Adobe PDF format. If you do not already have one, a program to read PDF files is available free from Adobe. Applicants should address the Selection Criteria, and include the names, addresses and fax numbers of at least 3 referees.)

Applications should be addressed to:

Recruitment Officer 1C18
University of Canberra ACT 2601

The University is AN EQUAL OPPORTUNITY EMPLOYER

POSITION DESCRIPTION

Position Title: Post-Doctoral Research Fellow, in Sonic Communications

Division: Communication and Education

Research Group: Sonic Communications Research Group (www.canberra.edu.au/vc-forum/SCRG.htm)

Appointment Level: Academic Level B

Reporting to: Prof Roger Dean

Vacancy Ref No: 03/2145

Position Purpose:
The appointee will carry out independent and team research in the recently formed Sonic Communications Research Group, within the Communication, Media and Cultural Studies area of research strength. This research group is lead by Prof Roger Dean (Vice-Chancellor), and Dr Hazel Smith (Senior Research Fellow). The project is funded by a new 3 year ARC Discovery grant to Roger Dean, in which the key collaborators are Dr Hazel Smith, and Dr Kate Stevens (UWS). The project concerns the use of computer generation and manipulation of sound to generate large scale musical structure. It investigates the psychological reality and recognisability of complex musical segments and structures. Affective responses elicited by the computer-generated and mainuplated sounds will also be examined. Further details,

including details of selected relevant publications from previous work of group members, are available from roger.dean@canberra.edu.au, and from the UC website, at the Sonic Communications Research Group home page (www.canberra.edu.au/vc-forum/SCRG.htm). Applicants at UC's Research Officer level will also be considered for this position. The successful applicant will also carry out activities to develop his/her research expertise relevant to the particular field of research, and the University of Canberra is developing several means to support the development of researchers' careers, such as contingency funding when a researcher gains their own research fellowship.

Duties:
Specific duties required of this Post-Doctoral position may include:

⟨ The conduct of research either as a member of a team or independently, and the production of conference and seminar papers and publications from that research.
⟨ Supervision of research-support staff involved in the staff member's research.
⟨ Guidance in the research effort of junior members of research-only academic staff in his/her research area.
⟨ Contribution to the preparation, or where appropriate individual preparation, of research proposal submissions to external funding bodies.
⟨ Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise.
⟨ Administrative functions primarily connected with his/her area of research.
⟨ Co-supervision, or where appropriate supervision, of major honours or postgraduate research projects within the field of the staff member's area of research.

〈   Attendance at meetings associated with research or the work of the centre to which the research is connected and /or school and/or division meetings and/or membership of a limited number of committees.

〈   Development of grant applications to develop the applicant's own research opportunities, and assistance with other applications supporting the Sonic Communications Research Group.

Required Expertise
One or more of the following are required:

1.   In depth experience and creative outputs in algorithmic generation of music, using MAX/MSP, or comparable software technologies.
2.   Research experience and publications in cognition of sound or music.

Essential Criteria

1.   Relevant doctoral qualification or equivalent qualifications or research experience
2.   Post-doctoral research experience which has resulted in creative work, publications, conference papers, reports or professional or technical contributions which give evidence of research and creative ability
3.   Established links with outside organisations that are of benefit to the University.
4.   Demonstrated effective interpersonal and communication skills.
5.   Demonstrated understanding of, and commitment to implementation of equity principles.

Desirable Criteria

1. Evidence of exceptional innovative capacity, coupled with critical and evaluative ability.

Before submitting your application
You may contact Professor Roger Dean, on (02) 6201 5000 or roger.dean@canberra.edu.au for academic/research information, further information about the position, or to discuss the program of research to be undertaken.

The University's cover sheet must accompany applications. Please submit your full application (as detailed in Information for Applicants on the UC website) via email to recruit@adminserver.canberra.edu.au, as well as hard copy (including the completed and signed Cover Sheet) to:
Recruitment Officer
        Room 1C18
        University of Canberra ACT 2601

Some further information about the funded ARC project is here:

A4 **Project Title**:
Towards efficient real-time generation of detectable musical macrostructure

A5 **100 word lay summary**
Efficient generation of detectable large scale musical structure is needed for commercial audiovisual applications, and for creative music making. But computer mediation of music has focused elsewhere: on sound synthesis and sequencing, editing, mixing and notation. I will apply computational processes, like the handling of chunks of genetic information in evolution, to generate large scale musical structure. I will control segmentation; framing of internal segments; spatialisation; and the overlaying of separable musical streams. Expert cognitive assessment of the resultant structures will be investigated, and theories of segmentation, streaming and their relationships with expression and affect developed and tested.

E1. **Towards efficient real-time generation of detectable musical macrostructure**.

E2 **Description**. The project will develop techniques to generate large-scale musical structure in real-time, and to assess the degree to which the resultant structures are cognitively accessible to experienced musicians. ('Real-time' means within the time frame in which a piece is performed.) The project will further develop theories of segmentation and framing in music, by musicological and scientific analysis. The theoretical development will be followed by cognitive assessment, taking advantage of the real-time generative mechanisms to produce systematic defined variations of musical structures, allowing comparative cognitive assessment by the expert listeners. Efficient generative techniques are required not only for preparation of experimental examples, but also for the audiovisual industries, which require economically-generated music whose relationship to the verbal/visual stream needs to be well controlled, since the affect of music influences the impact of film segments (e.g. [1]). Real-time generative techniques are also important for creative music per se; I have theorized and analysed the importance of real-time music creation (e.g. improvisation) in a series of substantial publications [2-6]. It is important that the music in this project will not necessarily be note-oriented, in the sense of classical instrumental music. Rather, much will be comprised of sonic structures which will be digitally synthesized or transformed in performance. The note-oriented music will initially be atonal. The project is complementary to others focused on the computer synthesis of music performance (as opposed to creation) [7].

The specific aims of the project can be summarised as follows:

1. To develop new algorithmic methods for the real-time generation ('digistructuralisation') of large scale musical structure ('macrostructure'), in a style-independent manner, using surface 'cues' for segmentation.
2. To investigate the detectability by expert musicians (composers and improvisers) and musicologists of the structural features so developed, notably segmentation.
3. To develop a theoretical framework for the detection, generation and utilisation of a range of musical segmentation devices (structural 'cues'); this framework will be informed initially by scientific and musicological considerations, and later also by postmodern cultural theory.
4. To iteratively test the relationship between defined algorithmic structural modifications of an otherwise unchanged piece, cognitive recognition of these changes and the newly established structures, and their affective content.