PROJECT PROPOSAL

MeteroSonic

an online realtime instrument played by the weather

Forward

" . . .the art work . . . is no longer a static object or a pre-defined multiple choice interaction but has become a process-like living system."
Christa Sommerer and Laurent Mignonneau Art as a Living System 1998

ARTISTIC GOALS, CONCEPT & OBJECTIVES

Artistic Goals and Concept

As the opening quotation suggests, **MeteroSonic** will tap the character of the organic world to form a new internet-based instrument. **MeteroSonic** is a development of my REEDS sound installation (http://www.activatedspace.com.au/installations/reeds), commissioned for the 2000 Melbourne International Festival. REEDS used weather stations, mounted on floating pods of fabricated river reeds to generate eight channels of music in realtime based on the momentary weather characteristics.

MeteroSonic will utilise the custom weather stations developed for the REEDS project, mounting one permanently in Sydney, Australia (at the University of Western Sydney) while the second weather station tours the world, residing for 6 months or more at one location (De Montfort University, Leicester, UK) before traveling on to another (Montreal, McGill University). An open call for hosting the weather station will be issued in later stages of the project, and festival appearances will also be sought.

The user of this internet based instrument will, using their web browser, be able to select the sound synthesis instrument(s) they wish to use, and then select the weather data (wind speed form Canada, temperature from Sydney, wind direction and solar radiation from UK etc) to 'perform' the sound synthesis algorithms they have selected. A collection of sound synthesis instruments will be offered, and the more experienced user will be able to dynamically create an 'orchestra' of synthesis instruments and access an advanced patching matrix allowing them to modulate one synthesis parameter with another to generate more complex and evolving musical scores, utilizing the wind speed, wind direction, solar radiation and temperature from both of the two weather stations..

The infrastructure of the project will require the writing of several pieces of software. These will be written in the Java programming language, with the user applications being compiled as Java Applets so that the instrument will run in any web browser. The sound synthesis algorithms will be written in the JSyn language (http://www.softsynth.com/jsyn/) for realtime sound synthesis and compiled as Applets so they will also run inside any web browser.

The following pieces of software are will be developed to proto-type level under the auspices of this grant:

1. **The sound synthesis instruments** will be written in JSyn, a Java based sound synthesis programming language. The initial instruments will be an translation of the original REEDS sound synthesis algorithms (originally written in Supercollider), with an open call issued via the internet for people to contribute addition algorithms through a moderated website.

2. **The Musical Client** will form the basis of the user interface, providing slots for the selection of sound synthesis instruments and the patching of weather data to sound synthesis parameters. An advanced user interface will allow cross modulation of weather data to sound synthesis parameters for more complex outcomes. Other electronic music performers will be able to 'tap' the weather data through the Musical Client as data for their own instruments and performances using the MeteroSonic instruments.

3. **Weather Data Servers**: These will collect the weather data from the weather stations every 50ms and package it in an appropriate form for the musical client software. The Weather Data Servers will run on any computer platform, with a web browser and will send the data only on request.

The project will be hosted by Activated Space (http://www.activatedspace.com.au), sponsored by the artist, and will be mirrored on a server at the University of Western Sydney, with the addition weather data being made available through the touring weather stations host institution (initially UK and Canada).

The proposed system is designed around an open infrastructure so that additional weather data servers (Weather Stations) and sound synthesis instruments can be added at any time in the future.

This musical instrument will provide the basis for musical performance, where electronic musicians may 'tap' the weather data as control data for part of their performance, and as the basis of sound installations, using either the weather data alone, or the complete instrument, and for personal enjoyment (a screen saver may be a later development, along with visualization algorithms).

The only other instrument of this kind is WeatherPlayer (http://www.weatherplayer.com), which simply streams audio. The instrument is fixed at the distant site, where a single weather station is situated, users are not able to select instruments, or direct weather data to chosen instrument parameters, a difference that make **MeteroSonic** unique, and will encourage repeated visits, and interactions with the instrument.

Outcomes

The funding applied for under the Sounding-Out program will provide the following outcomes for the MeteroSonic project:

Proto-type, working versions of the following software

- The sound synthesis instruments
- The Musical Client
- Weather Data Servers

The Development of the final web hosting interface and the presentation of the project in a permanent web space, and in concerts and festivals as a sound installation is beyond the immediate scope of this grant.

Three institutions (De Montfort University UK, McGill University Montreal, and the Electronic Music Foundation NY) have expressed interest in hosting the remote weather station when the project is fully on-line, but this initial grant will be restricted to prototype development to the stage of a working system, with both weather stations on the same network system.

Addressing the Aims of Sounding-Out

Long-term: **MeteroSonics** will be a long term project in that once the project is mounted on the internet, it's presence is projected as permanent. The project will be supported by an open call for people to contribute addition synthesis algorithms through a moderated section of the website.

Benefit to the broader community: The **MeteroSonics** instrument will be available for anyone to play twenty-four hours a day, and will be designed to encourage contributions from the broader community, through an accessible data stream so that other electronic music performers can use the data in their own musical compositions and performances.

Awareness of Contemporary Australian Instrument Building is supported through the use of the internet to make the instrument accessible world-wide. Once the instrument is established, proposals for installations and concert performances at international festivals will be developed, further extending the impact of the project.

KEY PARTICIPANTS

Artists involved and their responsibilities

Dr Garth Paine

Academic, Composer, Installation Artist, Sound Designer

Dr Garth Paine is particularly fascinated with sound as an exhibitable object. This passion has led to the creation of several interactive responsive environments where the inhabitant generates the sonic landscape through their presence and behavior. It has also led to a considerable body of work that creates music scores for dance in realtime using video tracking of the choreography.

He has an international reputation as a leader in the area of interactive sound works and has exhibited/performed extensively in **Asia, UK, Europe, USA, Canada, New Zealand and Australia** .

Dr Garth Paine was lecturer in Music Technology and Innovation at De Montfort University, UK from 2002 to 2003, and in October 2003 will take up a position as **Head of Program - Electronic Arts, Senior Lecturer in Music Technology,** at the University of Western Sydney, Sydney, Australia.

Dr Garth Paine's interactive audio-visual environment installation ***Gestation*** was featured in the 10th **New York Digital Salon** in 2002, and was again the featured work at the **DesignX: Critical Reflections** exhibition in Florida, USA in the same year, where he gave the Keynote address. ***PlantA*** , an interactive sound work using realtime meteorological data was exhibited as a special event at the **NIME03** conference at McGill University, Montreal in 2003.

In 2000 he was awarded the RMIT, **New Media Arts fellowship** by the **Australia Council for the Arts** , to assist him in the development of realtime interactive sound environments, which lead to his ***REEDS*** installation for the Melbourne International Festival in 2000. In 1999 he was composer in residence at the **Staatliches Institut für Musikforschung** (State Institute for Music Research - SIM) in Berlin, exhibiting his installation MAP1 in the **Musical Instrument Museum**, Berlin during the residency. He was commissioned by SIM to produce MAP2, which was exhibited at the Museum for Musical Instruments, Berlin from December 30, 1999 to January, 2000. His responsive, interactive audio-visual installation ***Gestation*** , developed with the assistance of Cinemedia, was premiered at RMIT gallery, Melbourne in December 2001 and has since been exhibited in Australia, USA and Europe.

His formal training includes a PhD in Animation and Interactive Media from RMIT University, Australia and a Bachelor of Music in Performance (flute) from the Tasmanian Conservatorium of Music, University of Tasmania. He also holds a Graduate Certificate in software engineering from Swinburn University and completed a two year Sound Engineering Trainee-ship with the Australian Broadcasting Corporation (ABC).

A selection of recent exhibition/performances of interactive sound works include:

10th New York Digital Salon, NY, USA
DesignX:Critical reflections, Florida, USA
NIME03, Montreal, Canada
Cybersonica, London, UK
SIGGRAPH (USA)
Sonic Residues Festival, Melbourne, Australia
Ars Electronica, Linz, Austria
Cyber Arts Festival, Boston, USA
Interactive Dance and Technology Conference, Arizona, USA
Staatliches Institut für Musikforschung , Berlin, Germany
Melbourne International Festival, Melbourne, Australia
Dance Umbrella Festival, London, UK
The New Moves Festival, Glasgow, UK
Downloading Downunder Festival, Amsterdam,
Next Wave Festival, Melbourne, Australia
Art Rage, Perth, Australia
Australasian Computer Music Conference 1999, 2001

The showing of his work at Ars Electronica in 1999 lead to him being listed as **one of twenty people " *changing the face of electronic music in the twentieth century* " by the German Keyboard Magazine.**

His work has ranged across the Museum industry with permanent installations in the:

Eureka Stockade Centre, Ballarat
Jewish Museum of Australia, Melbourne
Immigration Museum, Melbourne
New Museum of Victoria – Carlton

Expressions of interest to host the remote Weather Station have been received from:

De Montfort University, Professor Leigh Landy (http://www.mti.dmu.ac.uk/~llandy) is the Chair, Music, Technology and Innovation at De Montfort University and is the director of the Music, Technology and Innovation Research Group. He established *Organised Sound*, *An International Journal of Music and Technology*, published by Cambridge University Press, and remains a chief editor of the publication (http://uk.cambridge.org/journals/oso). He has an extensive history of cross-arts collaboration and a high international profile for initiatives in musicological study in electronic music, illustrated by the international consortium project Electroacoustic Resource Site (EARS - http://www.cse.dmu.ac.uk/ISS/DAL/ears).. I have had the pleasure of working closely with him on a number of initiatives at De Montfort University

Electronic Music Foundations (www.emf.org) Professor Joel Chadabe (http://www.chadabe.com) is a the founder of the Electronic Music Foundation, and is a pioneer in the development of interactive music systems. His book *Electric Sound* (Prentice Hall, 1996) is the first comprehensive overview of electronic music. He is Professor Emeritus at State University of New York at Albany, Director of the Electronic Music Studio at Bennington College, Director of the Electronic Music Studio at Manhattan College of Music, and founder and President of Electronic Music Foundation (EMF), USA. He was the music curator for the 10th New York Digital Salon, in which capacity he curated my *Gestation* installation. He is perhaps the most experienced person in the world in the area of interactive music systems, and very familiar with my work.

McGill university, Professor Marcello Wanderley is an *Electrical Engineer, with a PhD.from* Université Pierre et Marie Curie - Paris VI and is a *Member:* IEEE ,ACM ,ICMA. Professor Wanderley was formerly with the Analysis/Synthesis Team -IRCAM and is currently with the **Faculty of Music -McGill University, Montréal, Quebec – Canada.** Professor Wanderley focuses on performer-instrument interaction. He was the Co-editor (with Marc Battier) of the electronic publication, ***Trends in Gestural Control of Music (IRCAM)*** *and is the* Coordinator of the **Working Group on Interactive Systems and Instrument Design in Music - ICMA/EMF**