

FESTIVAL
AGORA
RENCONTRES TECHNOLOGIQUES
RÉSONANCES
1^{ER} AU 17 JUIN 2006

NiME 06 WORKSHOP

-
NETWORK PERFORMANCE

R E C H E R C H E E T C R É A T I O N M U S I C A L E S

THURSDAY JUNE 8, 2006

ircam, STUDIO 5
15:00-21:00

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nime06

ircam
Centre
Pompidou

This workshop brings together artists and researchers to present different artistic approaches, paradigms and technologies for music performance over the network.

While the first part of the workshop is focusing on electro-acoustic music performance. distributed over the network, the second part invites various approaches to collaborative performance inherently based on digital interfaces and network technology.

■ 20:00 Networking and Collaboration with the reactTable*

Chris Brown, Center for Contemporary Music, Mills College, Oakland

Sergi Jorda, MTG – University Pompeu Fabra, Barcelona

Martin Kaltenbrunner, MTG – University Pompeu Fabra, Barcelona

Javier Arciniegas, Composer, Montréal, Canada

Tadashi Usami, Composer, Nagoya, Japan

The reactTable* is an electronic multi-user musical instrument with a tabletop tangible user interface, developed by a team of digital luthiers at the Pompeu Fabra University of Barcelona. The reactTable* has been conceived as a collaborative instrument in which several performers construct different audio topologies in a kind of tangible modular synthesizer, by moving physical artefacts on the table surface. The composition TeleSon (2005) by Chris Brown, premiered simultaneously in ICMC 2005 (Barcelona) and Ars Electronica (Linz), extends this collaborative capability in requiring four performers playing on two remotely located reactTables*. All players share the control of a single instrument that is synthesized equally at both locations. The composition is based on the construction, interaction, and evolution of prearranged, modular synthesis patches.

The network architecture of this piece, which is based on OSC using Ross Bencina's OSCgroups, will be discussed and demonstrated with a short performance including remote collaborators in Japan and Canada.

■ 17:30 Musicking on Mobile Infrastructures

Atau Tanaka, Sony CSL, Paris, France

This talk presents the current state of a research project on using mobile and locative media techniques for participative, community-driven music creation. The work stems from earlier work in networked performance and installations. With mobile, wireless infrastructures, the locus of artistic action is displaced from the stage to the urban environment. We also call upon issues coming from the field of Social Computing to democratize the creative process to make inclusive systems. I will discuss the real world problems encountered in deploying such a system, from coarseness of location sensing, to true 3G network throughput, to aspects where mobile telephones and telecommunications networks differ greatly from computers and open networks as target platforms.

■ 18:00 About the past, present, and future of KeyWorx/Live

Lodewijk Loos and **Fokke de Jong**, Waag Society, Amsterdam, Netherlands

KeyWorx/Live is the name for the set of applications within the KeyWorx platform suiting "live" multi-user audio/visual performance. The KWlive project is the successor of the original KeyStroke project. Recently the development started all over again as an open source project. Fokke de Jong and Lodewijk Loos will be talking about the past, present and future of KWlive, expressing a view on multi-user networked performance, pointing out the difficulties they came across during the past years of development and the reasons behind the architectural changes and choices that were made. Some of the topics that will be discussed are: latency, multi-user interfacing, open sound control, public accessibility and applicability. Finally some plans for the future will be revealed. The presentation will include live demonstrations and there will be room discussion. Some kind of audience participation is scheduled (laptops are welcome!).

■ 19:00 HUB – Local Networks in Music Making

Chris Brown & **John Bischoff**, Center for Contemporary Music, Mills College, Oakland, California

Phil Stone, Sakai Project, University of California Davis, Oakland, California

Scot Gresham-Lancaster, Cogswell Polytechnical College, Sunnyvale, California

Tim Perkis, composer, performer and consultant

Mark Trayle, CalArts School of Music, Valencia, California

An OSCgroups based network music with MAX, Supercollider, PD, chuck. Focused on the emergent behavior of the local network and how to construct topologies and procedures to create music from this distinct phenomenon. While network music is commonly performed between separate spaces at great distances, an exciting new performance practice emerges from the very local use of networks. Computer network music, as practiced by The Hub over the last two decades, is characterized by the sharing of digital information via a network, which is used to algorithmically influence the music played by each player in the group. This form of interaction provides the opportunity for composer/performers using computers to use the unique attributes of this instantaneous sharing to create new ensemble relations. The musical behavior that results when each performer individually creates their own realization of a data-sharing specification in a variety of computer music languages affords a rich and unpredictable environment. Emergent behaviors and inexplicable synchronicities abound, and are used to enhance a collaborative, and improvisational performance practice.

■ Schedule

15:00 MARCEL – The Network as an Artist Space

Don Foresta, MARCEL, LSE London

15:30 Network Performance: Strategies and Applications

Alain Renaud, Sonic Arts Center, Belfast, Northern Ireland

Pedro Rebelo, Sonic Arts Center, Belfast, Northern Ireland

16:00 Network Music Performance (NMP) with Soundjack

Alexander Carôt, International School of New Media, Lübeck, Germany

Bruno Verbrugghe, IRCAM, Paris, France

Alain Renaud, SARC, Belfast, Northern Ireland

16:30 Symphonie des Machines

Frédéric Voisin, CIRM, France

Robin Meier, Composer, France

17:00 Distributed Immersive Performance: Qualitative and Quantitative Assessments of Remote Performance and Collaboration

E. Chew, **C. Kyriakakis**, **C. Papadopoulos**, **A. Sawchuk**,

R. Zimmermann Integrated Media Systems Center, USC, LA, California

■ Break

17:30 Musicking on Mobile Infrastructures

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18:00 About the past, present, and future of KeyWorx

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■ 15:00 MARCEL – The Network as an Artist Space

Don Foresta, MARCEL, LSE London

...The spirit of a time is probably a fact as objective as any fact in natural science, and this spirit brings out certain features of the world which are even independent of time and are in this sense eternal. The artist tries by his work to make these features understandable... The two processes, that of science and that of art, are not very different. Both science and art form in the course of the centuries a human language by which we can speak about the more remote parts of reality. -- Werner Heisenberg

■ 15:30 Network Performance: Strategies and Applications

Alain Renaud and **Pedro Rebelo**, Sonic Arts Center, Belfast, Northern Ireland

The development of high-speed networks provides a medium, which is becoming increasingly usable for real time media applications. The development of network music performance (NMP) and composition systems presents challenges with technical and cultural implications. Due to various technical factors, research in NMP systems has traditionally been restricted to the work of a handful of groups.

However, recent technical developments coupled with a nearly ubiquitous broadband infrastructure seem to have given a second life to NMPs. The Sonic Arts Research Centre (SARC) in Belfast has started to work on developing innovative approaches to the use of networks in music performance in composition, with the aim to make NMP systems as widespread and usable as possible.

Much network performance research has as its goal the replication of existing performance conditions. This paper explores some possibilities in redefining relationships between musicians, performers and composers, performers and audience, performers and spaces. The aims of this research is to identify performance conditions that are only possible through the network and to reflect on how the network is changing the way we create and consume music. The paper describes different scenarios that take advantage of real-time high quality audio exchange over the internet.

■ 16:00 Network Music Performance (NMP) with Soundjack

Alexander Carôt, International School of New Media, Lübeck, Germany

Bruno Verbrugghe, IRCAM, Paris, France

Alain Renaud, SARC, Belfast, Northern Ireland

With the development and democratization of multimedia applications for the internet, the idea of online music collaboration is becoming an increasingly popular subject. Since VoIP, videoconferencing, chats and filesharing are now widely used applications, the next step is the adoption and implementation of tools that allow real time musical interaction. However, live music can only be played efficiently over the network when a low delay and high quality infrastructure is in place. This requires either highly optimized streaming solutions or other compromised alternatives. This paper focuses on the general latency issue introduced by networks and the consequent low delay transmission approach implemented by the Soundjack software prototype.

■ 16:30 Symphonie des Machines

Frédéric Voisin, CIRM, France

Robin Meier, Composer, France

Symphonie des machines is a musical experiment with a population of artificial neural agents, written in Lisp and Python, running in parallel on over a hundred computers (GNU/Linux). Premiere is in Sophia Antipolis, France, on June 8th, as a part of the first Festival of the Fourth Dimension (www.4dimension.org).

Music, lights and video are generated live by this dynamic and highly interconnected multi-agent system. Using PureData and MaxMSP, the "neural correlates" of the agents will be musically and visually interpreted by the authors on six different sites at Sophia Antipolis, while music and video are streamed to different medias, such as the web and 3G mobile phones. Cluster hardware and support are provided by Eurecom, Infineon and INRIA. Furthermore France Telecom R&D, Philips, Seemage, Antipolis Labs, Trees Network, provide their sites, PC units and technical support for network architecture and rendering. This event is supported by the Telecom Valley Association and is part of the Neuromuse project developed at CIRM, Nice.

■ 17:00 Distributed Immersive Performance: Qualitative and Quantitative Assessments of Remote Performance and Collaboration

Elaine Chew, **C. Kyriakakis**, **C. Papadopoulos**, **A. Sawchuk** and **R. Zimmermann**

Integrated Media Systems Center, USC, Los Angeles, California

This talk presents the distributed immersive performance (DIP) technologies developed at the Integrated Media Systems Center at the University of Southern California, and the DIP experiments designed to assess the quality of human interaction in these remote environments. The talk represents a summary of the enabling technologies for, and an amalgamation and interpretation of findings from, our DIP experiments over the past two years. Some of the findings have been appeared in conference proceedings. The enabling technologies include low latency audio and high definition video transmission techniques that conceal packet loss and ensure smooth playback, real time streaming and archival of multiple data streams in an Internet networking environment, and 10.2-channel immersive audio for realistic reproduction of sound.

The talk will highlight our results from a series of collaborative performance experiments with the Tosheff Piano Duo, focusing on auditory delay, and discussions of its effects on musical coordination and interpretation, and the players' assessments of their abilities to adapt to the conditions. Finally, we present and discuss ongoing work and future plans.