

# ARTECH 2008

4th International Conference on Digital Arts | 7, 8 | November

Portuguese Catholic University | Porto



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## INTRODUCTION

ARTECH 2008 was the fourth international conference on Digital Arts held in Portugal and Galicia, hosted by the Portuguese Catholic University's School of Arts (UCP-EA). The 2008 edition of the conference took place in Porto, Portugal, from 7th to 8th November, 2008. The venue was the Portuguese Catholic University's School of Arts (UCP-EA) and Casa da Música (CdM), the city's main Concert Hall.

The ARTECH conferences aim to promote contacts between Iberian and International contributors concerned with the conception, production and dissemination of Digital and Electronic Art. ARTECH brings the scientific, technological and artistic community together, promoting interest in digital culture and its intersection with art and technology as an important research field, a common space for discussion, an exchange of experiences, a forum for emerging digital artists and a way of understanding and appreciating new forms of cultural expression.

ARTECH 2008 was in alignment with the main commitment of the UCP-EA Research Centre for Science and Technology of the Arts (CITAR) to promote knowledge in the field of the Arts through research and development within UCP-EA and together with the local and international community.

The main areas proposed for the conference related to sound, image, video, music, multimedia and other new media related topics, in the context of emerging practice of artistic creation.

The contribution from the international community to the ARTECH 2008 edition was extremely gratifying, resulting in the submission of 79 original works (Long Papers, Short Papers and installation proposals) from 22 countries. The ARTECH 2008 Scientific Committee reviewed these submissions thoroughly, resulting in a 73% acceptance ratio of a diverse and promising body

of work presented in the conference proceedings (ARTECH 2008 Proceedings (ISBN: 978-989-95776-3-3)).

The ARTECH 2008 proceedings provide an overview of the state of the art as well as a glimpse of new tendencies in the field of Digital Arts, with special emphasis on the following topics: Sound and Music Computing; Technology Mediated Dance; Collaborative Art Performance; Digital Narratives; Media Art and Creativity Theory; Interactive Art; Audiovisual and Multimedia Design.

Moreover, a very relevant and exciting part of the ARTECH conference results from the installations physically presented at the conference venue, the audiovisual performances at the UCP School of Arts and Casa da Música and from the Collocated Events: Olhares de Outono 2008 (<http://artes.ucp.pt/olhares-outono/2008/>) and DIGITAL Games 2008 (<http://www.digitalgames-group.org/cdg2008>).

## KEYNOTE SPEAKERS

### Adérito Marcos

Adérito Marcos presented the first keynote speech of the conference. He is a professor for Applied Computer Graphics Technologies at the University of Minho, Department of Information Systems, Guimarães, Portugal, where he is the director of the newly established Master's Course in Technology and Digital Art.

In his talk entitled "The computer medium in the creative process: foundations, lessons learned, and visions", he analysed the implications of the medium in the creative process, from the very early times of cybernetic art to today's recent creations of character animation and virtual art expressions. A model for a creative process as well as visions for future digital art developments were presented and discussed.

He argued about digital art objects

as being informational in nature, symbolic and purpose-built, where their creator intends to convey some message, normally to suggest some state of mind or to induce an emotion and the consequent feeling. According to Professor Marcos, these objects differ from conventional art pieces by the use of computers and computer-based artefacts that manipulate digitally coded information, opening unlimited possibilities for interaction, virtualisation and manipulation of information. In his opinion, the creative process begins when the creator gets hold of the first concept or idea resulting from his subjective vision, gradually modelled into a form of (in)tangible artefact. It then constitutes the message the artist wants to transmit to the world, and when digital content is used in this process, it can be both the means and the end product.

### Chris Chafe

Chris Chafe is a composer/ cellist / music researcher with an interest in computer music composition and interactive performance. He has been a long-term denizen of the Center for Computer Research in Music and Acoustics (CCRMA) at Stanford University, where he directs the Center and teaches computer music courses. His current projects include the "SoundWIRE" experiments for musical collaboration and network evaluation using high-speed internets for high-quality sound.

In his talk entitled "Tapping into the Internet as an Acoustical / Musical Medium", he discussed how recent work in network audio transport transforms advanced networks into a new kind of acoustic medium in which sound waves propagate as if travelling through air, water, or solids. By creating distributed virtual sound objects like instruments and rooms and by studying distributed ensembles, it is now possible to begin to understand this new sound world. The presentation focused on three areas of research: 1) audi-

tory methods for monitoring QoS, especially for networks supporting real-time, interactive, bidirectional flows; 2) remote musical collaboration using professional-quality, low-latency audio; and 3) empirical study of human factors affected by some unique acoustic properties of the medium Network latency, jitter and delay asymmetry affect the speed of sound and are never uniform.

Some effects have been measured empirically and the results contain some surprises. For example, latencies can be low enough that musicians at opposite ends of a path are essentially in the same room, and echo cancellation becomes unnecessary. Multi-channel “echo construction” can be designed to enrich the experience. For audio use, the new territory that is opening up is unlike any previous telecommunications medium.

He described how waves sent through the medium become reflected or altered as they bounce between hosts, and how propagation delays are then used to create echo chambers and build the resonances for “distributed musical instruments”. As a side-effect, tones created by network resonances can be used to monitor the quality of the underlying network.

### **António Camurri**

António Camurri was responsible for the third and last keynote presentation of the conference. He is an Associate Professor at DIST-University of Genova (Faculty of Engineering) and, simultaneously, founder and scientific director of the InfoMus Lab ([www.infomus.org](http://www.infomus.org)) there. His presentation described ongoing research under the main topic heading: Developing Multimodal Interactive Systems with EyesWeb XMI, which focuses on the analysis of pianists’ expressive gestures during a performance.

Gesture cues are captured using video cameras and analysed using

EyesWeb XMI, an open software platform to support the development of real-time multimodal distributed interactive applications. This mapping process is then crossed with emotional information extracted from the musical performance in order to find relationships between gesture patterns and musical emotions.

### **PAPER SESSIONS**

Paper Sessions occupied a major part of the conference. The first day was dedicated to Iberian Panels, therefore all presentations were in Portuguese, Spanish or Galician.

#### **1<sup>st</sup> Day**

The first paper session of the conference was dedicated to “**Media Art and Creativity Theory**”. Three papers, with a theoretical focus, were presented. The first paper, entitled “Paraíso de Acontecimientos” by Holga Méndez Fernández, reflected on the everyday promiscuity between reality and fiction, introduced by technology. The author argues that terms like hyperreality, real-time and transparency are nothing but myths used to create our own “Pararaiso de Acontecimientos”, of which platforms like Second Life are a good example.

The second paper, introduced by Alberto J. García Ariza, entitled “Estructuras Digitales en Narrativas Contemporáneas. 3 ejemplos”, showed how some programming structures can be used as metaphors to explain new narrative paradigms. To support this thesis the author presents 3 examples where equivalent structures between programming languages and narratives can be found.

The last paper of the session, “O espaço das instalações de arte” was presented by Milton Sogabe. In this text, the author argues that the notion of space is changing with the use of technology, namely with cyberspace. Nevertheless, he is critical about the abundant use of the term installation when applied to pieces that don’t have a straight relationship

with space, even in the higher state of understanding.

The second paper session of the first day, was dedicated to **Interactive Art**.

Three papers concerning this topic were presented, starting with a discussion of the human body’s role as a component in interactive installations, passing through digital games, and ending with an historical perspective on human and computer evolution.

Rosangella Leot, professor and researcher at PUC-São Paulo, Brazil, presented a paper entitled “Arte dentro e fora do corpo: Interfaces” in which she clarifies the roll of human body on interactive art pieces, and its evolution as part of a complex system of interfaces where borders are not always easy to recognise.

The second paper presentation was by Patrícia Gouveia, entitled “O vale da estranheza, notas sobre o realismo das criaturas vivas nos jogos digitais e a sua relação com o jogador” and referred to the importance of graphic realism on digital games. This research, involving a group study compound by several hardcore players, led to the conclusion that graphic realism is not the most important characteristic in the achievement of a sense of reality. On the other hand, the corporal experience related to the veracity of movements and repetitive tasks, seems to play the major role.

Cristina Sá closed the session, presenting a paper entitled “Futurologia no Passado – Possibilidades Entre o Homem e o Computador”, in which the evolution of computers along with human needs and expectations is discussed. The author argues that by observing the relationship between humans and computers in different ages and contexts, it is possible to attempt to predict the future of it by analysing the present. The conclusion, however, shows a major difficulty in this prediction, due to the complex spread of computers throughout a multiplicity of areas,

people and expectations.

The third and last paper session of the first day, was dedicated to the topic "**Audiovisual and Multimedia Design**". Three papers were presented, each sharing visual concerns related with different areas, like new visual interfaces, outdoor design and mathematical issues.

The first paper, by Silvia García González, entitled "A criatividade das novas interfaces visuais: unha oportunidade educativa" debates the importance of visual interfaces and data visualisation processes as cognitive opportunities. The author defends the use of diagrams as a cross-way between arts and science, which should be widely explored in order to organise and access information on the Web more efficiently.

The second paper, presented by Francisco Mesquita, entitled "Design do Outdoor: inovação com base em pigmentos reactivos", describes a creative use of an emergent pictorial technology. Using reactive pigments that change according temperature and light conditions, it is possible to add a temporal dimension to a (so far) static outdoor billboard.

Two speakers, Andréia Machado Oliveira and Hermes Renato Hildebrand, shared the last presentation of the session with a paper entitled "O Acontecimento em Escher e nas Imagens Digitais: Conexões entre Arte e Matemática". They are an artist and a mathematician, respectively. This work focuses on the understanding of Echer and digital images form Deluze's theory, which assumes that events and nomadism bring mobility into human thoughts.

## 2<sup>nd</sup> Day

The first paper session of the second day of the conference was on the subject of **Sound and Music Computing**. Four authors presented their latest works, covering such topics as sonification, interaction, algorithmic music composition, and sound art and its relationship with natural phenomena.

The first paper, presented by Antoine Allombert, and entitled "A System of Interactive Scores Based on Qualitative and Quantitative Temporal Constraints", proposes a formalism to compose and play interactive scores involving temporal structures and discrete interactive events. Temporal logical constraints (known as Allen's relations) and quantitative constraints on time intervals over temporal objects are used to define the global organisation of the scores. During the composition the constraints are maintained using a propagation model, while during the performance input controls are accepted and used to drive some temporal object, making it necessary to maintain the constraints in a real-time context.

The second paper, presented by António Sousa Dias, and entitled "Navigating through musical spaces with InstallaSon: a progress report", describes an application for editing and managing installations requiring audiovisual projection, where some kind of interaction between video, the audio and the user must be taken into account.

The third paper, presented by Luiz Naveda, and entitled "Sonification of Samba dance using periodic pattern analysis", focuses on the sonification of Samba using a multi-modal analysis-by-synthesis approach. The author proposed the use of periodic pattern analysis to decompose Samba dance movements into basic movement gestures along the music's metric layers. In the synthesis, peaks and valleys are extracted from the basic movement gestures and then used as the basic material for the sonification. This leads to a matrix of repetitive dance gestures from which the proper cues that trigger samples of a Samba ensemble are selected.

The last paper of the session was presented by Laura Maes, entitled "Unravelling the mystery: the creative use of natural phenomena in sound art". In this work the author argues about the interaction between sound

art and science, which in her opinion not only leads towards new forms of art, but also brings along new challenges for the creation, presentation and conservation of sound art.

The second paper session of the day was about **Technology Mediated Dance**. Four authors presented their work on this topic, from robot dance to scenery issues.

The first paper, entitled "Towards an Interactive Framework for Robot Dancing Applications" by João Oliveira, describes an architecture for a robotic system using a humanoid robot, based on Lego Mindstorms NXT. The system tries to simulate the human rhythmic perception of audio signals and its reactive behaviour in the form of dance. The examples demonstrate that this interactive robot control keeps the dynamism manifested by human behaviour, granting spontaneous and dynamic dance movements in synchronism to music, without any previous knowledge of it. Ivani Santana presented the second paper, "Concepts in Cyberspace applied to Dance and Telematics. Telepresence Art of Joint Dancing Bodies". In this paper, the author describes and analyses several telematic performances and concludes that those are an aesthetic reflection on the Information Age in which we live nowadays. She also states that the possibilities opened up by cyberspace configure a new concept of dance, and not only the mere exchange of dance registries (audiovisuals, scenic). The third paper, presented by João Moura, entitled "You Move You Interact: a full-body dance in-between reality and virtuality", describes an interactive digital installation designed to encourage a body performing dialogue with an artificial system. In "YMYI", the user is an active player dialoguing with the artefact, possibly changing it. The system uses a video camera for motion tracking and a video projector as output display. Daniel Tércio presented the last paper of the session, "From Escape Points to



the Vertigo Points". In this paper, he makes a couple of historical leaps from the past to the present time in the history of performing arts in general and in dance in particular. The term "abyss technologies" is introduced to describe the adoption of non-artistic techniques and devices by arts realms that have changed art itself and particularly the relationship with the stage.

The third paper session of the day was dedicated to **Collaborative Art Performance**. Three speakers presented articles related to artistic collaborations mediated by technology. The first was Juan-Pablo Cáceres, presenting a paper entitled "To the Edge with China: Explorations in Network Performance". In this text he describes the planning and execution of the multi-ensemble networked concert entitled "Pacific Rim of Wire", where musicians were distributed between two different stages, one placed in Stanford, the other in Peking University. The paper outlines the technical and music strategies employed to support the production's demands, as well specific methodologies employed for the realization of Terry Riley's "In C". The second paper, entitled "Collaborative Composition for Musical Robots", presented by Ajay Kapur, describes research based on collaboration with a number of different artists to explore the capabilities of robotic musical instruments to cultivate new music. A. Kapur underlined the importance of the network created between artists and researchers in this field, describing a number of performance scenarios where laboratory experiments and rehearsals moved to concert halls. The last paper of the session, "The Problem of Collective Creation in Art and Technology", by Júlia Blumenschein, was presented by Rosangella Leote. This paper debates the paradigm of collaborative art, trying to specify methods and solutions for different people, with different characteristics, to collaborate on artistic creations

without hierarchic issues. The author takes SCIArts as her case study for this research.

The last session of the second day of the conference was on the topic of **Digital Narratives**. Three papers were presented in the session. Valentina Nisi presented a paper entitled "Location-Aware Multimedia Stories: Turning Spaces into Places", where the author explores the idea of interactive narrative systems which are site specific and rely on large-scale movements around that space to mediate access to their content. Mia Makela presented a paper entitled "The Practice of Live Cinema", in which she discusses the artistic practice of live cinema (a recently coined term for real-time audiovisual performances), and compares its methods with those of cinema and VJng. The final talk was conducted by Ana Boa-Ventura, with a presentation entitled "Digital Storytelling: New Forms of Curating Required", where she argues about the need of media organizations to develop curating strategies aiming at increasing the visibility of the current wealth of digital stories.

### INSTALLATIONS

During the conference, nine artistic installations were available to the public. The Choir Room hosted the majority of them, while others remained at the Bar and in the Radio Room. There was a big heterogeneity between pieces. Interactivity with the user was a common issue for most, although they explored different media such as sound, image or both. All the installations were submitted with a short paper that can be consulted in the conference proceedings.

### POSTER PRESENTATIONS

Two sessions for poster presentations took place during the conference, with a total of 22 posters. Though they were exposed all day to public, the official presentation happened after the lunch break, when the authors could explain particular as-

pects of their research. Some posters were accompanied by installations with which viewers could interact. All posters were submitted with a short paper that can be consulted in the conference proceedings.

### PERFORMATIVE EVENTS

The ARTECH 2008 programme included three performative events. "Collaborative Composition for Musical Robots", presented by Ajay Kapur & Arne Eigenfeldt, was a collaborative performance in which the artists explored the capabilities of robotic musical instruments to cultivate new music. This performance presented the challenges faced in using musical robotics on stage and introduced the design of custom software frameworks and tools for the variety of composers and performers interacting with the new instruments. In their "Laptop Music and Visuals" performance, Vitor Joaquim and Hugo Holim presented an experimental and improvised electronic music concert (in the genres of glitch, warm electronic and beat-less electronic music), accompanied by live visuals generated in real-time from the music. "TELECONCERT: International Improvised Music Performance" was the final performance of ARTECH2008, in which musicians located in distinct geographical locations, were able to play together using a high-speed internet connection. Alexander Carôt (electric bass) and Chris Chafe (electric cello), both at Casa da Música in Porto, Portugal, and Pedro Rebelo (piano) and Franziska Schroeder (saxophone) at the Sonic Arts Research Centre, in Belfast, Ireland, played jazz standards and improvisations, dealing with the inherent latencies of the network connection.

