Keynotes

Keynotes 1: Spatial Sound

Frank Melchior: Let the sound interact and not the user—responsive and immersive experiences for the next generation broadcasting

Next generation broadcasting is likely to enable complete new user experiences. It may will move away from the concept of a single piece of linear content which is delivered to the whole audiences towards more personalised, more immersive, more interactive forms. This will substantially improve our story telling for each and every individual member of our audience but also will require new ways of making, representing and delivering content to the audience. This talk will highlight the challenges and opportunities of these developments for audio content. A special focus will be on the link between representations of content and the devices used to consume it in different environments.

Frank Melchior received the Dipl.-Ing.degree in media technology from the Ilmenau University of Technology, Ilmenau, Germany in 2003 and a Dr. degree from the Delft University of Technology, Delft, The Netherlands, in 2011. Currently he is Head of BBC Audio Research and the BBC Audio Research Partnership at BBC Research and Development, Salford, United Kingdom. From 2009 to 2012 he was the Chief Technical Officer and Director Research and Development at IOSONO GmbH, Erfurt , Germany. From 2003 to 2009 he worked as a senior researcher at the Fraunhofer Institute Digital Media Technology, Ilmenau, Germany. He holds 17 patens and applications and has authored and co-authored a large number of papers in international journals and conference proceedings. His current areas of interests include object-based and spatial audio capture and reproduction, next generation audio content experiences and user experience in future broadcasting systems. Dr. Melchior is member of the Audio Engineering Society (AES), the German Acoustical Society (DEGA) and represents the BBC in the International Telecommunication Union (ITU), the European Broadcasting Union (EBU) and DVB.

Peter Lennox: The Philosophy of Perception and Stupidity

Of all the strange phenomena in the so-far-known universe: exotic particles, black holes, dark energy/matter, 9-dimensional strings, none is stranger, more implausible or mysterious than the one right under our nose: perception.

Perception does not simply consist of processing recently-received sense data—that's the smallest part of it. Perception fundamentally attempts the impossible: to try to reduce our situational ignorance to manageable proportions, to know the future. More, it is aimed at choosing the right future—the one that still has the perceiving organism in it. Repeat, ad infinitum until ultimately, it ends in failure.

Ignorance is simply: not knowing, and is something we are all faced with every day. Stupidity lies in not knowing what it is that we don't know, behaving as though we do know. A special kind of stupidity consists in hiding the extent of our own stupidity from ourselves. A criminal kind of stupidity consists of imposing our stupidity on others.

The story of the evolution of intelligence is also the story of the rise of increasingly complex forms of stupidity. Academic study is the process of traveling to the frontiers of known territory to reach the edge of the land of ignorance, where we are all idiots. Research is simply an extension of the principle of perception, the impossible attempt at stupidity reduction. Stupidity is a fundamental feature of organic life, a driving force that underpins all development.

Many study perception but few systematically study stupidity. Yet.

Peter Lennox received his PhD in The Philosophy of Perception in Artificial Auditory Environments: Spatial Sound and Music from the University of York in 2005. Currently he is a Senior Lecturer and Researcher in The University of Derby College of Arts. From 2004–2010: Director of Signal Processing Applications Research Group (SPARG) University of Derby, School of Technology. His research and publishing interests are in developing theories and applications of extended and augmented perception, large-scale artificial environments, multimodal perception and sensory substitution. He enjoys fruitful collaborations with artists, perceptual scientists and technologists.

Keynotes 2: Interactive Sound

Rebecca Fiebrink: Data as design tool. How understanding data as a user interface can make end-user design more accessible, efficient, effective, and embodied, while challenging machine learning conventions.

We often assume "data" is something that is collected or measured from a passive source. In machine learning, we talk about "ground truth" data, because we assume the data represents something true and real; we aim to analyse and represent data appropriately, so that it will yield a window through which we can better understand some latent property of the world.

In this talk, I will describe an alternative understanding of data, in which data is something that people can actively, subjectively, and playfully manipulate. Applying modelling algorithms to intentionally manipulated data—such as examples of human movements, sounds, or social media feeds—enables everyday people to build new types of real-time interactions, including new musical instruments, sonifications, or games. In these contexts, data becomes an interface through which people communicate embodied practices, design goals, and aesthetic preferences to computers. This interface can allow people to design new real-time systems more efficiently, to explore a design space more fully, and to create systems with a particular "feel," while also making design accessible for non-programmers.

Dr. Rebecca Fiebrink is a Lecturer at Goldsmiths, University of London. A computer scientist and a musician, her research focuses on creating new technologies for digital music and art. She is the developer of the Wekinator software for interactive machine learning, and much of her current research focuses on novel applications of machine learning to facilitate creative and real-time interactions between humans and machines. She has worked with companies including Microsoft Research, Smule, and Imagine Research. She has performed regularly with a variety of musical ensembles, including as a laptopist in Sideband, the principal flutist in the Timmins Symphony Orchestra, and one half of the new London-based viola and electronics duo "Squirrel in the Mirror." Prior to arriving at Goldsmiths, she held a faculty position at Princeton University.

Stephen Barrass: Sonic Information Design

The workshop on Sonic Interaction Design at ICAD 2014 included 8 papers on design theory, methods and research in the context of Auditory Display. This presentation builds on that workshop to propose Sonic Information Design as a distinct field of design modelled on, and complementary to, the recently established field of Sonic Interaction Design. The presentation will begin with a review of design methods that have already appeared in the ICAD community. The next section will present an overview of the way knowledge is generated through design, and compare this with the scientific method. The presentation will continue with a discussion of the difference between information and data, and variants in the meaning of information as used in information graphics, information visualisation and data visualisation. This will lead to the final discussion of the distinction between Sonic Interaction Design and Data Sonifcation.

Stephen Barrass is Associate Professor in Arts and Design at the University of Canberra. His practice led research includes the Interactive Welcome to the Gallery of First Australians at the National Museum of Australia, ZiZi the Affectionate Couch in the Museum of New and Old Art in Hobart, the Listening to the Mind Listening Concert at Sydney Opera House Studio, and the Hypertension Singing Bowl at Currents New Media Festival in Santa Fe 2015. Academic publications include Leonardo Music Journal, ACM Computers in Entertainment, IEEE Multimedia, Sage Visual Communication, and Digital DaVinci.