

AHRC ICT Methods Network Workshop

IMMERSIVE VISION THEATRES AND STRATEGIES FOR KNOWLEDGE TRANSFER

IMMERSIVE VISION THEATRE, UNIVERSITY OF PLYMOUTH, 13 DECEMBER 2007

Report by Martha Blassnigg and Michael Punt

This event was convened jointly by Transtechnology Research at the University of Plymouth and the AHRC ICT Methods Network. It was delivered as planned and publicized with the exception of the presentation by the SEOS team who, at short notice, were unavoidably unable to participate. Their component was delivered by David Macconville from the perspective of his company Elumenati. Of the invited participants most were able to attend for all the sessions while the plenary lectures attracted a larger audience since they took place in an unrestricted auditorium. The experimental and innovative live link and presentation of *Uniview* using the internet network was successful. The following discussion in real time with a participant in the USA was also technically robust and intellectually valuable. The plenary discussion provoked a number of possible initiatives but at this proximity it is impossible to be specific about future collaborations. What can be claimed at this stage is that the interpretation of immersive vision technologies have been broadened among a constituency committed to using and sharing them.

Introduction to the Day

The event began with registration and coffee served in the Immersive Vision Theatre in order to familiarize participants with the environment as a technical resource. The day was introduced by Michael Punt who outlined the objective of identifying the key topics, approaches and discourses that need to be co-ordinated to develop reliable practices and methods of evaluation in designing immersive audio-visual experiences in an educational and research context. He emphasized that the focus of the day was to identify existing strategies for the effective use of immersive A/V environments for the transfer of knowledge and to suggest new areas of research that will contribute toward a deeper understanding of the experience for the participant.

The technical team, led by Peter Carrs, presented a number of projects that had been realized for immersive vision environments, and some developed at the University of Plymouth by his team. The emphasis in this presentation was on those projects that required quite low resolution and modest technological specifications. This was to encourage prototype and blue skies thinking about possible uses of the resource, which is a design feature of the IVT in order to facilitate easy access for end users. Emphasis was also placed on the provision in the resource for feedback and interaction and the portable versions of the immersive environment which could be used for diffusion and public outreach. This familiarization with the IVT prepared the ground for three keynote presentations.

Keynote Presentations

The keynote presentations were chaired and introduced by Martha Blassnigg. She emphasized the intellectual and technical coalition of reception and environment that IVTs bring to the fore. David Surman, a specialist in animation and games theory, presented the first paper which discussed form and content in contemporary games design and argued that the avatar and the cinematic performer, although visually distinct, have an affective impact that is comparable. Games design has recognized this and as such there are implications for how affect and behaviour is discussed in various schools of psychology. The questions following his paper developed this theme since it resonated with some interactive uses of the IVT by

behavioural psychologists. Blassnigg also invited a reflection on social networking and collaborative gaming in a shared space.

The second paper by Patricia Pisters argued that recent trends in neuroscience and film studies have brought issues of consciousness to the fore. More recently however, the biological aspects of the brain have been regarded as an interface between matter and thought and she discussed a particular example in which there was a direct methodological collaboration between the arts and humanities and the sciences. It was here, she argued, that much contemporary film theory originating in the arts was found to be useful to neuroscience and, conversely, much of the experimental and theoretical in neuroscience was enlightening for those interested in understanding how the audio visual experience impacted on the human perceptual apparatus. In this sense a totality had replaced a binary and the theoretical implications of this were valuable in thinking about how immersive environments worked and how they might be used in future projects. A discussion of Deleuze's three concepts of thinking opened further exchanges concerning the dynamics of incoming perception and outgoing action.

Finally Beau Lotto, from University College London, presented the background to the current research at his lab dealing with anomalous perception, in particular in relation to colour, and the transdisciplinary research methods that his lab uses. In addition to providing rich examples of the vulnerability of human perception to context and its adaptability to anomalous stimuli, he also described some current projects in which artists' methods and scientific procedures have produced new insights in his field.

Each presentation was followed by extensive discussion from the floor lead by the chair. Collectively the presentations developed the theme that veridical percepts were not essential for visual responses to the environment. Much of the discussion also opened up a consideration of memory in general and how immersive environments might impinge on our understanding of its processes. During a working lunch, Hannah Drayson demonstrated her current research into bio-feedback instrumentation with devices and software ultimately intended for inclusion in the IVT at Plymouth. A research imperative has been to use simple portable instrumentation that yields reliable data of affective states in such a way that it can be visualized in real time in an IVT environment. This research is part of an ongoing study to produce valuable qualitative data from the audiences experiencing various presentations and stimuli in such environments.

The afternoon session did not include a presentation from SEOS since the directors of the company were called to an unscheduled meeting in USA that morning. This allowed David Mcconville's live presentation remotely controlled from Ashville, North Carolina to be extended to include a discussion of commercial aspects of Elumenati. This remotely controlled presentation of an IVT was the first public demonstration of the system which was developed at Plymouth. Mcconville presented *Uniview*, which is claimed to be "the most feature-rich astronomical visualization and universal data exploration platform on the market, yet simple enough to get you started with doing live presentations in schools, large scale theaters and fulldome planetariums in no time" (<http://www.scalingtheuniverse.com/>). In effect it is a schematic dynamic map of the universe with a temporal dimension of 13.4 billion light years. *Uniview* draws on constantly revised data from NASA to provide a schema that can be navigated using an intuitive interface which is readily understood by users with games experience. The demonstration and commentary used an IP connection and he was able to show the effect of the representation and the opportunities for networked interaction with and between audiences. The cognitive and affective impact of this schematic (which was information rich but non veridical) was self-evident and the demonstration showed that the conventional subject matter of planetariums could be used to advance research and the design and development of content suitable for knowledge transfer. The discussion that followed, chaired by Katina Hazledon (whose research interest lies in networked interaction and the dimension of presence) and led by Mcconville was wide ranging but of especial interest was the concern with Open Source and games engines as drivers of real-time navigation in complex immersive visualisations. Key to both this networked control and interaction with the environment and the earlier demonstration was the modest computing power required to achieve a profound affective impact. While the IVT at Plymouth, as at many other institutions, is powered by high specification computers both demonstrations at this event relied entirely on modest laptops to produce

immersive audiovisual environments with real-time interaction. As such they showed how with fairly accessible technical means pioneering research could be undertaken in a networked community distributed across the globe.

Discussion

Within this context the plenary chaired by Professor John Wood began with a brief introduction from participants including an outline of their current research interests and how what they had seen might or might not be of value to their research. The issue of the perception of social proximity was opened up by Katina Hazeldon whose perspective is derived from her current research. The quite distinct sense of the extraterrestrial presence of the remote operator was thought to be more profound when there were fewer participants. There was some discussion and clarification of the technical aspects that might apply to specific projects as for example in neuro-science, cognitive psychology, arts performance and immersive cinema. The possibilities for funding individual projects were also discussed and the strategy of intellectual collaboration also offered some strategic possibilities for support. While it was acknowledged that the technological aspects of the networked remote manipulation of the IVT were innovative and experimental at this stage, the informing discourses of the content and the reception of the content should be informed by prior discourses in cinema, and particularly in television. In addition, as David Surman was at pains to point out, there were significant discussions of the architectural form of the dome that should not be overlooked. The potential for an academy to be founded as a clear forum for the complexity of the discussions that IVTs present could be a crucial development. John Wood drew attention to the unstaged effect of the acoustics of the dome as a material environment and how this carries with it another constituent that might be added to the experiential mix. The ambisonics of the IVT have the effect of providing a unique experience in a collective presentation and this provides another dimension for developing the conceptual possibilities of the resource alongside its purposes of visualization in an educational context. The final topic of the discussion returned to the inclusion of a data feed network that connects the seats in the IVT. This has a conceptual value and Hannah Drayson outlined her own technical research into how this system might be used to collect data relevant to neuroscience and psychology.

Outcomes

The purpose of the workshop was to explore an emergent and exciting technological development that, in virtue of its resemblance to other media, could by default be regarded as an adjunct to them. The thesis of the event was that there were interpretations of IVTs that could be uncoupled from the imperative of veridical percepts. The ensuing discussions suggested that the particular coalition of cinema, television, games and neuroscience could indeed provide a basis for reinterpreting it.

During this process synergies and overlaps did appear to emerge and it is hoped that in future these will be deployed as discrete projects. In particular there was extended discussion of the application of immersive experience both in the production of learning materials and in the simulation of experiential learning environments. The formal proceedings of the workshop closed with a reminder that it was important to establish a bibliography and the announcement of Plymouth as the venue for The European Workshop in Immersive Cinema in May 2008.

David Mcconville has kindly offered his research and bibliography in support of further development of application and content production. This can be viewed at:

http://research.elumenati.com/Cosmological_Cinema/Cosmological_Cinema_poster_small.pdf

The development of a bibliography and research on this project is ongoing.

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