

# Sensors for the Senses: Meaning-making via self-active entertainment experiences

## Keynote

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### ABSTRACT

In his ACM Computers in Entertainment article, titled "Artist and Audience: Emerging the Nano-entertainment experience" [1], the author posited on how Inhabited Information Spaces, created as core catalyst of research, may be questioned as a multisensory future virtual work of art. This themed Human-Computer Interaction for Entertainment contribution for the EAI INTETAIN 2015 conference builds upon the earlier work by questioning meaning making from such self-active entertainment experiences. Contextually, self-active relates to actor empowerment via ICT, whilst entertainment refers to HCI paradigms that are fun, engaging, and enjoyable.

Conceptualizing, designing and realizing alternative digital media entertainment situations in stage performance, interactive installations and exhibitions at leading Museums for Modern Art, National and International major events, contributed to development of a sensor-based system conceived as a platform to investigate meaning making having societal impact beyond art. The system involves arrays of selectable sensor profiles mixed and matched according to requirements. Sensing of human input can be through worn (biosignal e.g. EEG, ECG, EMG, GSR), held, and/or non-worn sensors (volumetric, linear and planar interface profiles). Mapping of sourced human data is to a variety of digital content including art-based (music making, digital painting, lighting effects), video games, Virtual Reality and robotic devices. System adaptability promotes participant profile matching e.g. according to desired outcome. All ages and abilities are potential users.

Preceding the commonly known camera-based game controllers such as EyeToy, Wii, and Kinect; the SoundScapes Virtual Interactive Space [2] system has been used in institutes, hospitals and clinics to empower people with impairment to unconsciously push their limits of functionality via creative and playful expression. Rehabilitation is less mundane and boring, where variety of ICT-based intervention motivates whilst offering creative opportunities for facilitators. Additionally, in a randomized intervention study with frail elderly patients, Hagedorn and Holm reported significant clinical rehabilitation impact up to 400% in the ICT feedback training specific performance [3].

This work highlights how co-informing paradigms between computer and human science and art, games and healthcare, can result in societal impact as well as commercial patented product and industry start-ups. At the core of the research is a rethinking in the way a human interacts with ICT. Current research explores a concept of dynamic air and alternative physical-virtual environments.

Conclusions introduce a suggested need of increased researcher awareness of post-research effect following intervention/trials within healthcare and rehabilitation.

*Keywords – sensor-based systems; human-computer interaction; human science; art; video games; healthcare; rehabilitation*

### BIOGRAPHY

Acknowledged as a third culture thinker [4] and referred to as “a world pioneer in digital media and its use with the disabled community” [5], Dr Anthony (aka Tony) Brooks, under Aalborg University Esbjerg campus in Denmark, is an Associate Professor and director of the SensoramaLab; a facility exploring Virtual Reality; e-health; HCI and Entertainment Experiences via Human Behaviour Analysis; Interaction Design; Computers in Entertainment; Serious Games/Gamification; Ludic Engagement Designs for All (LEDA); Play, Learning and Innovation. He is also a leading light of the hugely successful Medialogy education, being the sole surviving employed member of the original founding team.

Appointed by the European Commission (Brussels/Luxembourg), Brooks is EU expert examiner, rapporteur, and panel reviewer of funded projects under Future Emerging Technologies (FP6 / FP7) and Horizon 2020 calls. Additionally, he is reviewer for the Council for the Humanities of the Netherlands Organization for Scientific Research (NWO), e-health innovations by SMEs,

and The Economic and Social Research Council (ESRC), UK. Brooks is IFIP - (UNESCO) Danish Representative (International Federation for Information Processing) and European Alliance for Innovation Chair of the Wellness SIB Market and society activity. He is also active in the European Alliance for Innovation (EAI); CREATE-NET; E-Health council; steering person of the ArtsIT international conference, and active on numerous boards and committees. His research transcends traditional individual disciplines, which has resulted in a long list of global keynote speaker credits at major events. His research has been responsible for contemporary national (DK) and international (EU) projects. It has also resulted in patents, creative industry initiatives (SMEs) and commercial products. National and International awards have been awarded for his contribution. In his 'spare time' he runs his consultancy SME. Personally sponsored by industry (e.g. IBM, Sony, Panasonic, and others) Brooks' digital media artist work, which feeds into his healthcare research, has been presented at major events including commissions at two Olympic/Paralympic Games Cultural Events (1996/2000); numerous European City of Culture commissions; The Danish NeWave New York (1999); numerous Museum of Modern Art exhibitions; and many more. He is active on the Computers in Entertainment scene having been an invited columnist, article and book chapter author.

Over 170 peer-reviewed publications contribute to his growing body of work which include a number of books relating how ICT, entertainment, creative expression, play and fun are increasingly meaningful implemented alongside serious games/gamification and robotic device scenarios where healthcare, learning, wellbeing and quality of life issues are in foci. His work targets societal impact and benefit in respect of future demographics and service industries through applied ICT and optimized motivation of use through inclusive intervention strategies. Emergent models from his research that focus upon 'in-action intervention' and 'on-action evaluation' are well cited.

#### REFERENCES

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