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Trends and challenges in virtual reality technology

For the last four decades computer science researcher and industry have been working intensively to develop technology that would revolutionize the human experience interacting with computers, as well as with each other focusing their effort and hopes on virtual reality, augmented reality and mixed reality to realize this vision. Nowadays with the advances of head mounted displays, mobile and networking technology, wearables, smart environments, artificial intelligence and machine learning the required infrastructure falls in place to support the seamless human interaction in VR required to facilitate rich user experience. Domains of applications with great impact of VR span from education and training, culture, e-commerce, tourism, healthcare, entertainment and new forms of broadcasting. However, the new advances of this technology and the application requirements create new challenges in terms of interaction styles and design approaches that need to be adopted to ensure that users feel fully immersed in the computer simulated environment or the mixed reality environment they interact and fully engaged in the activities they participate. There is a need for a user centered design framework and design guidelines to support VR designers to create simulating environments and applications and to drive further VR technological development. The key note speech will present the state of the art of VR technology, it will discuss the virtual user experience challenges that derive from the current trends in VR and it will present some attempts of the serious games at Westminster Research Group (SG@W) to develop design guidelines for virtual human representation in VR and for the use of gamification as a design element to enhance user engagement in VR.

Recent Publications

1. Economou D, Mentzelopoulos M, Georgalas N, Carretero J and Garcia-Blas J (2017) Virtual environments and advanced interfaces. *Personal and Ubiquitous Computing* 6(21):963-964.
2. Economou D, Doumanis I, Argyriou L and Georgalas N (2017) User experience evaluation of human representation in collaborative virtual environments. *Personal and Ubiquitous Computing* 21(6):989-1001.
3. Economou D, Doumanis I, Pedersen F S, Kathrani P, Mentzelopoulos M, Bouki V and Georgalas N (2016) Westminster Serious Games Platform (wmin-SGP) a tool for real-time authoring of role-play simulations for learning. *EAI Endorsed Transactions on Future Intelligent Educational Environments* 16(6):e5. ISSN 2409-0034.

Biography

Daphne Economou is a senior lecturer at the department of computer science, faculty of science and technology at the University of Westminster since January 2006. She has a PhD in virtual reality systems design from the Manchester Metropolitan University, a MA in Design for Interactive Media (Multimedia) from Middlesex University and she is a Senior Fellow of Higher Education Academy. She has published a long list of journal papers, peer-reviewed international conference papers and she served as program committee member in several international conferences. She has industrial experience as Human Factors Engineer at Sony Broadcast and Development Research Labs, Basingstoke UK and she is member of British Computer Society, IEEE and British Interactive Media Association (BIMA). She has been involved in the programme committee of several international conferences and she has organized and chaired workshops in IEEE international conferences related to serious games.

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