CYPRUS UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF MUTLIMEDIA & GRAPHIC ARTS

You are cordially invited to attend a public presentation by Lecturer Despina Michael which is part of her evaluation for promotion to the rank of Assistant Professor.

Venue: Tassos Papadopoulos Bldg - 2nd Floor - Room 4 (202), Themidos and Ifigenias corner
Cyprus University of Technology, Limassol, Cyprus
Date: 14 July 2015
Time: 10:00 - 11:00 a.m.
Language: English

Title: Virtual Reality: Presence & Embodiment
Speaker: Despina Michael, Cyprus University of Technology

Abstract

Virtual Reality (VR) is a subfield of Computer Graphics dealing with computer generated simulations of a 3D environment, designed to make users believe that they are actually experiencing a real environment. VR uses special equipment that allows physical exploration and interaction with the virtual environment with high level of *immersion*. In this talk I will elaborate on a series of VR studies that I have conducted.

My presentation will start with studies in the area of *presence* illusion. Typically, VR relies on the illusion of *presence*, meaning the participants have the sensation of being in the virtual place. Presence illusion has been exploited in VR environments that are not easy or even not feasible to be reproduced in a real setup. First, I am going to talk about a driving simulator which has been used to investigate parameters (e.g. advertising billboards), that may affect accidents in a black spot of Limassol's city road network. Then, I will briefly elaborate on more VR studies I have conducted with applications in disciplines such as cultural heritage, marine sciences, edutainment and psychology.

The current state of the art research in VR has, in addition, focused on transforming the sensation of one's body within the VR environment. Through *embodiment* illusion, VR can nowadays be exploited in innovative ways, not only allowing the understanding of human behaviors, but also pointing to indications related to human perception of the environment and body's and mind's responses. The second study that I will describe in more depth, investigates whether our ability to protect ourselves, from being hit by fast moving objects, is affected, when we have the illusion of owning an extraordinary (e.g. alien's) body, compared to owning a human's body. Results demonstrate a more aggressive behavior in the case of embodiment in a virtual alien. The last study that I will describe under this topic goes a step further. It investigates whether real physical properties of humans may change, based on the characteristics of the avatar that they are embodied in. The results of this study demonstrate that embodiment in a strong avatar influences humans' real physical abilities.

I will conclude my talk with a summary of VR's potentials for research and development and plans for future work exploiting the presence and embodiment illusions.

Despina Michael is a Lecturer in the Department of Multimedia and Graphic Arts and the scientific coordinator of the Microsoft Computer Games and Emerging Technologies Research Lab (GET Lab). She also serves as the co-coordinator of the inter-university postgraduate MSc program in Computer Games and Interactive Technologies. She received her PhD in Computer Science from the University of Cyprus (2010) and she worked as a post-doctoral researcher at the EVENT Lab of the University of Barcelona (2011) specializing on experiments around Virtual Reality systems. Despina has received several awards and distinctions including the Anita Borg Scholarship awarded by Google (2008). Her research interests focus on Computer Graphics and Virtual Reality. She has been involved in more than ten research projects on these topics, including the H2020-TEAMING-RISE (2015) for which she is the principal investigator on behalf of the Cyprus University of Technology.