Editorial

Foreword to the Special Section on Serious Games and Virtual Environments

It is our pleasure to present this special section of Computers & Graphics (C&G), featuring extended and revised versions of select best technical papers presented at the 9th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games 2017), 6–8 September, Athens, Greece. VS-Games 2017 was jointly organized by the National Technical University of Athens (NTUA), Greece, and the Human Computer Interaction Laboratory (HCI Lab), Faculty of Informatics, Masaryk University, Czech Republic and was awarded technical sponsorship by the Institute of Electrical and Electronics Engineers (IEEE).

The terms Virtual Worlds and Games for Serious Applications cover a broad range of applications ranging from simulations to computer graphics applications. VS-Games 2017 addressed some of the significant challenges of these areas covering both educational and technological issues. Three papers have been selected and reviewed based on their relevance to the general field of computer graphics. In particular, topics included: eye-tracking, motion capturing, multimedia, brain-computer interfaces and virtual environments.

The conference received 50 submissions from 22 different countries from all over the world, out of which 16 manuscripts were accepted as regular papers, 11 as short articles and six as poster communications. All papers were reviewed by three people and accepted manuscripts appeared in the conference proceedings, published in the IEEE Digital Library. For this special section, initially five papers were selected based on their review score and oral presentation at the VS-Games 2017 conference. Based on an internal review between the guest editors, only three papers were finally invited to submit a significantly revised and extended version to be considered for publication in the special section. All three papers were reviewed again by three anonymous experts before they could be accepted for publication in Computers & Graphics.

The first paper, authored by Duchowski [1], presents a review of gaze-based interaction. It is categorized within a taxonomy that splits interaction into four forms, namely diagnostic, active, passive, and expressive. The survey paper discusses each form of interaction, reviewing seminal results and recent advancements, highlighting outstanding research problems.

The second paper, Rallis et al. [2], propose a new dance summarization scheme using 3D motion captured data. The proposed key frame extraction method implements a hierarchical scheme that exploits spatio-temporal variations of dance features. Comparisons to other traditional video summarization methods indicate a clear superiority of the proposed hierarchical spatio-temporal decomposition scheme.

The final paper, authored by Škola and Liarokapis [3], shows how embodied VR environments can facilitate motor imagery brain–computer interface training. Performance of 30 healthy participants after two training sessions was measured using an on-line BCI method. The embodied VR environment exhibited significantly higher average accuracy for BCI actions.

We sincerely hope that the readers will be inspired by the research presented in these papers to submit their research to future editions of VS-Games.

References


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