

Serious Games 2014: International Workshop on Serious Games

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ABSTRACT

The ACM First International Workshop on Serious Games was held on November 7, 2014. It was co-located with ACM's International Conference on Multimedia in Orlando. The purpose of the workshop was to bring together researchers and practitioners working on the development and use of serious games. The rationale behind co-locating this workshop with ACM Multimedia was that games are indeed multimedia systems, involving 3D graphics, integrated audio processing, human factors for the input devices, and often also the real-time transmission of events over computer networks.

Categories and Subject Descriptors

[Applied Computing] Education, [Applied Computing] Health and Medical Sciences, [User/Machine Systems] Human Factors, [Computers and Education] Computer and Information Science Education

Keywords

Serious games, gamification, game development, elearning, games in health, games in education, games in culture

1. INTRODUCTION

Computer Games are very popular worldwide. The market volume has almost reached that of feature films. Serious games, however, are different from fun games: they have a serious purpose that is combined with the fun aspect for motivating the players. Examples for the serious purpose include education and training, fitness, health, marketing and many more. Thus, at this workshop, we had experts from both game development and the application areas, contributing their outstanding knowledge and innovative ideas. The authors of accepted papers were allowed to bring their games to the workshop for demonstration.

2. SCOPE

The workshop began with an invited talk on *The Five Most Important Research Issues in Effective Game Design* by Thomas Baranowski of Baylor College of Medicine in Houston, Texas. He is a professor for pediatrics with many years of experience in using games for childrens' health. Thomas Baranowski took the

perspective of a behavioral scientist and gave recommendations for a successful game design from his large experience.

The invited talk was followed by three sessions of submitted and accepted papers: Serious Game Development, Serious Games in Health, and Serious Games in Education, Training and Culture. In the first session, Ralf Dörner and Ulrike Spierling presented a paper on *Serious Game Development as a Vehicle for Teaching Entertainment Technology and Interdisciplinary Teamwork*. They derived general advice on how game development can be used successfully in teaching. Luca Galli proposed rules how to employ game mechanics for serious games in his paper *Matching Game Mechanics and Human Computation Tasks in Games with a Purpose*. The interesting topic of *simulating players in a collaborative multiplayer serious game* was addressed by Viktor Wendel et al. They propose an approach to realistically simulate human player behavior in collaborative multiplayer serious games, taking learning, collaboration and teamwork into account. Laila Shoukry et al. use *learning analytics for serious games*. Learning analytics are a modern approach to evaluate teachware modules but they have not been used frequently for serious games before. The authors emphasize the importance of integrating logging software into the serious game in order to later analyze the learning behavior of the player.

In the second paper session, Andrea Ferracani et al. discuss the *design and implementation of a natural and immersive virtual interface for surgical safety checklist training*. Since operations are safety-critical for humans, the World Health Organization (WHO) has issued a safety checklist for surgeons, anesthesiologists and nurses to go through before they begin an operation, and the serious game of the authors helps them in performing this task. *Recent evidence on serious games in neurorehabilitation* is examined by Josef Wiemeyer. He analyzes more than 30 games in that context and concludes that a positive tendency can be observed for their effectiveness but the evidence is not yet convincing. John Preston takes a different approach at health games: He supports the development of *serious games for health in a big game jam* he holds every year, and in his paper he reports the interesting results of the most recent event.

In paper session 3, the application of games to education, training and culture was addressed. Michael Christel et al. presented *Lessons Learned from Testing a Children's Educational Game through Web Deployment*. They created four versions of a simple balance-fulcrum game, teaching the children about the importance of weight and its distance from the fulcrum, with different opportunities for socio-emotional learning added in. In their evaluation they reported interesting results about the use of the different versions; for example, the children stopped playing the game with

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the socio-emotional learning component earlier. In their paper *Games for Cultural Awareness* Jennifer Bohn et al. present a serious game for exchange students to learn about the culture of their host universities and their host countries. And Sandro Hardy et al. quantify *the challenge in an exercising game* where the user has to do specific training on a balance board; they interpret the degree of challenge they measure as a major indication for the motivation to keep playing.

Altogether the invited talk and the three papers sessions gave an excellent overview over the current state of the art in serious games.

3. ORGANIZERS OF THE WORKSHOP

This workshop was organized by Thomas Baranowski (Baylor College of Medicine, Houston, Texas), Mark Claypool (Worcester Polytechnic Institute, Worcester, Massachusetts), Ralf Dörner (University of Applied Sciences, Wiesbaden, Germany), Wolfgang Effelsberg (University of Mannheim, Germany), Stefan Göbel (Technische Universität Darmstadt, Germany), Florian 'Floyd' Mueller (Royal Melbourne Institute of Technology, Melbourne, Australia). They were also the chairs of the program committee.

4. PROGRAM COMMITTEE

Jannicke Baalsrud Hauge, University of Bremen, Germany

Marc Cavazza, Teesside University, UK

Stefano A. Cerri, University of Montpellier II, France

Karin Coninx, Hasselt University, Belgium

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Erik Van der Spek, Eindhoven University of Technology, Netherlands

Steffen Walz, RMIT, Melbourne, Australia

Noah Wardrip-Fruin, University of California Santa Cruz, United States

Viktor Wendel, Technische Universität Darmstadt, Germany

Josef Wiemeyer, Technische Universität Darmstadt, Germany

Kevin Wong, Murdoch University, Australia

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