Challenges in Serious Gaming as Emerging Multimedia Technology for Education, Training, Sports and Health

(Extended Abstract)

Ralf Steinmetz and Stefan Göbel

Multimedia Communications Lab (KOM) TU Darmstadt, FB 18, KOM,
Rundeturmstr. 10, 64283 Darmstadt, Germany
{Ralf.Steinmetz,Stefan.Goebel}@KOM.tu-darmstadt.de

Abstract. Digital computer games are very popular and successful, both as leisure activity and contemporary information and communication medium in the digital age, and as relevant economic factor and prospering market, not only in the creative industries. Games tackle a diversity of research aspects, e.g. Computer Graphics, AI, Storytelling, interfaces and sensors, authoring and production, usability and user experience or other ICT and multimedia technologies. Game technology and game techniques are broadly used by other application domains apart from pure entertainment as well. The rather new field of Serious Games, games with an additional purpose other than mere entertainment, offers a variety of new challenges and new fields of research. In our opinion, the term Serious Games comprises games for education (in terms of learning and practice), training, sports, and health. The core idea of Serious Games is to use the motivation inherited in games for other purposes like learning, sports, rehabilitation exercises, or even advertisement or opinion forming. Prominent examples in the field of Serious Games (games 'more than fun') are games for health, persuasive games, advergames or games for education and training, for instance in the form of multiplayer online games as tools to support collaborative learning settings. The combination of gaming technologies and gaming concepts with other research disciplines, technologies, methods and concepts results in a broad range of application domains. The resulting research areas are Authoring of Serious Games, Collaborative Learning using multiplayer Serious Games, Serious Games in Social Networks, and sensor technology for Serious Games for Sports & Health. In this talk, we will review the various aspects and application areas of Serious Games and point out some of the grand challenges in the field of Serious Gaming. Some of the core research topics of the Serious Games at the Technische Universität Darmstadt and the httc will be reviewed. StoryTec, an authoring environment for the creation of Serious Games for non-programmers, will be illustrated, as well as 3D multiplayer Serious Games for collaborative learning and team (leader) training. Furthermore, Serious Games for sports & health, especially for fall prevention, rehabilitation, and management of obesity will be outlined.