
CHI 2011 Accessible Games SIG

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Abstract

Video games are early adopters of emerging technologies and introduce them to the mainstream market. Increasingly work-related applications follow the lead of entertainment systems. Yet with the growing importance and complexity of 3D technologies and virtual worlds, motion and gesture interfaces, more barriers are being raised that prevent people with disabilities from using or fully enjoying them. These new gaming experiences often require more control than current assistive technologies can support, even when the architectures themselves are designed to be accessible.

The Accessible Games SIG will provide an opportunity for people working in the area of accessible games and entertainment or who can bring value to the area to meet and network, and to discuss future community building activities. A goal is to stimulate more collaboration in the accessible games area. In addition to sharing current work and identifying areas of common interest, a scenario focused exercise will be held that imagines a fully accessible networked virtual world game in order to uncover opportunities for research and innovation.

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Keywords

Games, Virtual Worlds, Accessibility, Universal Access, Tactile Feedback, Audio Feedback, Switch Access

ACM Classification Keywords

H.5.2 Information Interfaces and Presentation: User Interfaces

General Terms

Design, Human Factors, Legal Aspects

Introduction

Video games are early adopters of emerging technologies and introduce the associated experiences to the mainstream market. Accessibility is another area where the potential value of a new technology first begins to appear. New forms of interaction are explored in ways that both uncover new functionality as well as shaping interactions that stimulate compelling emotional reactions. Increasingly applications in the office follow the lead of entertainment systems. Touch and gesture became common for entertainment experiences and are now more aggressively being explored in information work, and the early impact of speech was to benefit the disabilities community.

Yet with the growing complexity and importance of 3D technologies and virtual worlds, motion and gesture interfaces, face recognition and more barriers are being raised that prevent people with disabilities from fully using and enjoying them. These new game experiences often require a more sophisticated mapping of simple user controls than current assistive technologies can support, even when the architectures themselves are designed to be accessible. Video games and virtual worlds that build from the visual experience and lack

textual representations, or touch experiences that require visual orientation or that are more fluid can break when interacting using a screen reader.

At the same time video games themselves are being used for purposes that range well beyond entertainment to education, health, and other areas. A study by PopCap Games found that one in five casual video gamers have some form of disability (similar to the population at large), and a Forrester study sponsored by Microsoft found that nearly 60% of people would benefit from more accessible experiences. Games used for educational purposes may increasingly be mandated to be accessible. Certainly solving some of the challenges of enabling games that leverage emerging technologies to be accessible will have both direct benefits to those with disabilities and in uncovering innovations in functionality; it will also have indirect benefits in the design of more accessible and valuable ubiquitous natural user interfaces of all types.

Goals

This SIG will provide an opportunity for people working in the area of accessible games and entertainment systems (or who can bring value to the area) to meet and network, and to discuss future community building activities. It is intended to stimulate more collaboration in the accessible games area. In addition to sharing current work and identifying areas of common interest, a scenario-focused exercise will be held that imagines a fully accessible networked virtual world game in order to uncover opportunities for research and innovation.

CHI 2011 is featuring Games and Entertainment as a community for the first time, and research in the area is growing. Much innovation in HCI is coming from this

area, for example in natural user interface experiences like Microsoft Kinect, Playstation Move, and others. There has been little coverage at CHI, however, of accessible games. This is an important area not only because it opens an important area of social and artistic life to all people, but because solving the issues of how to enable games to support a more diverse set of users is likely to produce games with richer and more innovative interfaces, and serve to drive these technologies into the mainstream of other software applications as well.

Content of the SIG

We anticipate discussion around topics such as:

- What is the current state of research and practice?
- What is the opportunity for community building?
- What are the major research challenges that a community focused on accessible games needs to investigate?

Proposed Agenda

- Introductions with Highlights of Current Work: 20 minutes
- Setting Up the Scenario: 10 minutes
- Identifying Issues Arising from the Scenario: 30 minutes
- Discussing and Prioritizing the Most Critical Gaps: 20 minutes

Background of the Authors

Arnold (Arnie) Lund is Principal Director of User Experience and User Experience Community Lead for Microsoft's IT organization. He is a member of the SIGCHI Academy, and he co-chaired the CHI conferences in 1998 in Los Angeles and 2008 in Florence, Italy. Currently he serves as the Communities Chair for CHI 2011. His current research interests are in cloud computing, ubiquitous natural user interfaces, storytelling and accessibility. He is on the editorial board for the *International Journal of Speech Technology*, and on the Advisory Board for the *Journal of Usability Studies*. He is the author of the forthcoming book *Leading User Experience: Essential Management Skills for UX Teams* (Morgan Kaufmann).

Annuska Persons TBD

Sri Kurniawan is on the faculty at Baskin School of Engineering, University of California Santa Cruz (UCSC) and the co-director of the Assistive Technology Lab. Her work includes serious games, more specifically mobile games for rehabilitation and for maintaining healthy lifestyle. She is on the editorial board of ACM Transactions on Accessible Computing and Universal Access in the Information Society journals. She had published two books with IGI Global on Universal Access and in Web Accessibility, and is currently working on a book titled *Assistive Technology for Blindness and Low Vision* (CRC Press).

Lennart Nacke, Ph.D. in Digital Game Development, is a postdoctoral research associate in the interaction lab of the University of Saskatchewan, Canada. His research focuses on the creation and analysis of digital

gaming environments and mechanics. He is interested in physiological player-game interaction and in developing methodologies and tools for evaluating player experience, emotion and attention. Most of this work is focused on the development and analysis of interaction and evaluation systems using physiological sensors (e.g., brainwaves, muscle and skin

conductance sensors, eye tracking). In the past years, he has organized and chaired several workshops on research topics such as applying game design principles to system development, affective computing and psychophysiological evaluation, game metrics and biometrics, interaction design for physiological sensors, game usability and user experience.