HCI research in digital games: current status and future trends
Contents

Academic Research in Digital Games
The Past and the Current Trends in Academic Games Research
Games Research at UEF
References / Literature
Academic Research (1/3)

- ACM Digital Library (game(s))
  - Results xx of 34,616
  - Exploring adolescent's STEM learning through scaffolded game design
  - Characterizing and understanding game reviews
  - Views from atop the fence: neutrality in games
  - Scenario generation for emergency rescue training games
  - Using prototypes in early pervasive game development
  - Using genetically optimized artificial intelligence to improve gameplaying fun for strategical games
  - Towards minimalist game design
  - Evaluation of a game-based lab assignment
Academic Research (2/3)

- ACM Digital Library (game(s) AND interaction)
  - Results xx of 19,238
  - Bringing context into play: supporting game interaction through real-time context acquisition
  - Contextual Virtual Interaction as Part of Ubiquitous Game Design and Development
  - An introduction to 3D spatial interaction with video game motion controllers
  - A video game-based framework for analyzing human-robot interaction: characterizing interface design in real-time interactive multimedia applications
  - The social side of gaming: a study of interaction patterns in a massively multiplayer online game
Academic Research (3/3)

• ACM Digital Library (game(s) AND hci)
  - Results xx of 4,228
  - Marrying HCI/Usability and computer games: a preliminary look, 2004
  - Games and HCI: perspectives on intersections and opportunities, 2011
  - Brain-computer interfaces for hci and games
  - What HCI designers can learn from video game designers
  - Entertainment is a human factor: game design and HCI
Literature topics review (Islas Sedano, 2012)

- the description and analysis of the design and implementation of games by professionals
- the inclusion of game design modules in computer science curricula
- technologies and its analysis relevant to virtual worlds
- semiotic studies of game meanings
- the analysis of the players’ game experiences and immersion
- learning with and through different commercial games and research prototypes
- social networking, community aspects, the sense of game content ownership and emergent game cultures
Development from HCI to Digital Games

• First wave: usability engineering
  – In software development, the scientific experiments used in HCI were considered too heavy and expensive, and were thus replaced by somewhat lighter and less rigorous version of experimenting: usability testing. Usability testing was accompanied by “discount methods” such as heuristic evaluation, a form of expert evaluation based on general design guidelines.

• Second wave: user-centred design
  – user-centred design aimed at focusing on the context of use, involving users throughout the design process and founding the process on iteration. Several design methods such as participatory design and later contextual design were developed to implement the ideas of user-centred design in practice.
Gaming experience

• Third wave: designing for user experience, creating worth
  – In HCI, user experience has taken more profound meanings: it is about understanding the felt life, emotional response and the sensual quality in interaction, something that the designers can only design for as they can- not have a total control over factors that affect the overall experience.
  – Yet it has already been argued that designers should not stop at user experience. Instead, worth and values are becoming the main themes in third-wave HCI.
  – In the world of ample technological possibilities, the emphasis shifts from what can be achieved with technology to what should be achieved with it: what is the value that digital games can bring to their users and to the humankind?
Examples of current contributions of HCI to digital games

• Predecessor (1980-1988) enjoyable interfaces, fun to use metaphors
• Repurposing (2001+) 3d engines, interfaces, controllers inputs
• User experience (2002+) pleasure, fun, emotion, desire
• Ludic design (2002+) curiosity, exploration, reflection, openness
• CSCW (2005+) motivating collaboration, recommender/reputation
Examples of current research and discussion topics

• Diversity of applications, e.g., for elderly, for parties, for work.

• Challenges of working with real data

• Gamification of services

• Eco behaviors / sustainability

• Ethics: responsibilities of users, regulators, designers, privacy and data use, need of transparency and informed consent, targeting vulnerable audiences, coercion and social pressure

• User groups: Socio-economic status/access, gaming literacy, dependency levels, aesthetics tastes, player types, gender, work place roles.
Games at UEF

• Since 2000, exploring with Seniors and Kids’ club
• From 2005 starts formal research in games. Game workshops (in Finland and Africa). The development of game systems involving context aware applications, eye tracking.
• Game prototypes that have been transformed as full products such as LieksaMyst (Islas Sedano, 2012).
• V10 - Designing technology for elderly people with dementia
  – Games for cognitive rehabilitation
  – Virtuaalikymppi-project aims at enriching the quality of life of frail elderly people living in nursing homes, old-age homes, housing service units or in institutional care. In addition, the cognitive and social interaction is supported by the means of the technological innovations.
Games at UEF

• I2S2 - Institute of Inclusive Science and Solutions
  - Games for Children with Autistic Spectrum Disorders
  - http://www.uef.fi/iss
  - IISS is a kick-off project for establishing the Institute for Inclusive Science and Solutions that consist of interdisciplinary Research Plaza, Research Incubator and Research Space.
  - The Innovative Research Initiatives fund of the University of Eastern Finland funds the project.
Journals (Open Access)

• Games — Open Access Journal
  – http://www.mdpi.com/journal/games
• International Journal of Computer Games Technology
  – http://www.hindawi.com/journals/ijcgt/
• Game Studies
  – http://gamestudies.org
• ELUDAMOS - Journal for Computer Game Culture
  – http://www.eludamos.org/index.php/eludamos
• Journal of Virtual Worlds Research
  – http://jvwresearch.org/index.php
Journals (Accessible through UEF)

• Simulation & Gaming
  – http://sag.sagepub.com/

• Games and Culture
  – http://gac.sagepub.com/

• International Journal of Gaming and Computer-Mediated Simulations (IJGCMS)
  – http://www.igi-global.com/journal/international-journal-gaming-computer-mediated/1125

• IEEE Transactions on Computational Intelligence and AI
Conferences

• NetGames - Network and Systems Support for Games

• FuturePlay – Meaningful Play
  (International Academic Conference on the Future of Game Design and Technology)
  – http://www.futureplay.org/
  – http://meaningfulplay.msu.edu/

• International Conference on Entertainment Computing
  – http://icec2012.org/

• Foundations of Digital Games
  – http://www.foundationsofdigitalgames.org/
Conferences

• Fun and Games
  – http://fng2012.org/

• Games and Software Engineering

• Interactive 3D Graphics and Games

• Mobile Gaming

• Symposium on Video Games
  – http://sandbox.siggraph.org/
Organizations

• DiGRA — Digital Games Research Association
  – http://www.digra.org/
  – http://www.digra.org/dl/
  – DiGRA Conference (odd years)
  – DiGRA Nordic Conference (even years)
PhD Thesis

• Carolina Islas Sedano, University of Eastern Finland, “Hypercontextualized Games”, 2012

More:
http://www.uef.fi/cs/tutkimus
markku.tukiainen@uef.fi