Special Issue Proposal

Title: User Experience of AI in Games

Proposed Call:

A commonly quoted aim of AI in Games research is the idea that we are not building AIs to beat a game, but to create a better user experience - but how do we do this, and maybe even more importantly, how do we know when we are successful?

How do players experience Artificial Intelligence (AI) in games? How do they feel about the AI, and how are the decisions made by the AI communicated to the player? Is there interaction with the AI, and if so, who takes the lead? Is this a social experience, a believable one? Is the AI creative, or at least perceived as such? And finally, is the AI making the game experience better? These are only some of the challenges facing player (or user) experience and AI.

AIs fill many roles in games, from companions to antagonists, from storytellers to architects, from directors to producers, and from game testers to game designers. With all the recent focus and technical advances in AI, and the increasing popularity of AI as a part of game design, AI is moving into the foreground of games research. In particular, we have seen novel use of procedural content generation, machine learning, natural language processing, and similar technologies both in games but also in their supporting systems, such as recommender systems, matchmaking systems, etc.. However, tackling the questions mentioned above requires a range of different technical expertise, as well as psychological and user experience expertise which allows us to understand how these technologies impact players. In this special issue we want to establish a forum for work that integrates these diverse disciplines to allow for an outlet to discuss open problems in this space towards advancements in AI and UX of games.

This special issue follows the 2019 and 2020 Workshops on User Experience and Artificial Intelligence, which encompassed the intersection between UX and AI as it manifests in games. However, the special issue is open to all relevant submissions. We wish to act as a point of interaction between researchers specialized within these fields, in the hope that this will help facilitate research that allows for the creation of more interesting and robust AI-based game experiences.

Topics

Topics include, but are not limited to:

- the believability and presentation of non-player characters
- the user and player experience created by procedurally generated content
- the player experience of narratives woven by director AIs

- trade-offs between autonomy and control over storylines, dialogue, and similar
- perception and acceptance of game AI tools
- the presentation and player perception of AI in game design
- user-centric examinations of the various technologies that are used to construct these in-game functions
- of particular interest are studies on how we create interesting game experiences using AI, and how these are interpreted by players

Editors:

We present a relatively long list of editors - this is motivated by the fact that we hope to encourage academics from different areas to submit, and want to ensure them (with a diverse set of editors) that we can adequately review their submissions.

Henrik Warpefelt <research@warpefelt.se>

Bio: Dr. Henrik Warpefelt is an adjunct Assistant Professor of Game Design at Södertörn University. He studies the user experience of artificial intelligence in games, focused on expanding our understanding of how players perceive and interpret game design, as well as eliciting good design practices for AI technologies applied in games. His previous research includes social believability for non-player characters, and usability and design heuristics for games. He is the head organizer for the User Experience of Artificial Intelligence in Games Workshop. Henrik received his PhD from the Department of Computer and Systems Sciences at Stockholm University and was previously at the Department of Game Design at Uppsala University.

Communities: Game studies, UX, Human-Computer Interaction

Christoph Salge <ChristophSalge@gmail.com>

Bio: Dr. Christoph Salge is a Senior Research Fellow at the University of Hertfordshire, currently working on using intrinsically motivated AIs for various applications, such as evaluating procedural content generation in Games. In general, he is interested in the principles that adapt intelligence in general, and how to formalize them computationally. Of particular relevance to this journal is his work on intrinsically motivated behaviour generation where he showed how coupled empowerment maximisation can create generic supportive or antagonistic game companions (best paper award at CIG2018). He is also one of the organizers of the GDMC AI Settlement Generation Challenge in Minecraft. He has also worked in the perception of intrinsically motivated robots in HRI. He has authored over 50 peer reviewed research publications, in conferences such as COG, FDG, Alife, IROS, CHIPlay and journals such as PRE, PlosOne, Entropy and Frontiers. He is an associate editor of Adaptive Behaviour. He has received a MSCA Fellowship from the European Commission. He holds a Phd from the University of Hertfordshire in Information Theoretic Models of Social Interaction and a Diplom in Computer Science from the Braunschweig Institute of Technology.

Communities: AI in Games, Alife, Computational Creativity, Procedural Content Generation, HRI, Robotics, History in Games

Magy Seif El-Nasr <mseifeln@ucsc.edu>

Bio: Dr. Seif El-Nasr is a professor and vice chair of Serious Games in Computational Media at the University of California Santa Cruz. Her work focuses on two goals (a) developing automated tools and techniques for authoring, adapting, and personalizing virtual environments, and (b) developing data science approaches to measure human behavior to evaluate the effectiveness of game environments in making an impact in health and learning. She recently published the first book on the subject of 'game analytics', called Game Analytics: Maximizing the Value of Player Data. Her work is internationally known. Notably, she received several *best paper awards*, including two Best Paper Awards at Foundations of Digital Games 2015, a Best Paper Award at the International Conference of Virtual Storytelling 2003 and another at the Autonomous Agents conference 1999. Further, she also received notable mention and exceptional paper designations for her papers at FDG 2019 and 2020. Dr. Seif El-Nasr chaired and co-chaired several conferences, including PETRA 2013 (Program Co-chair), AIIDE 2013 (Local Chair), Foundations of Digital Games (FDG) 2012 (Chair), International Conference on Entertainment Computing (ICEC) 2011 (Co-Chair), Advances in Computer Entertainment (ACE) 2009 (Program Co-Chair). She is also on several editorial boards, including IEEE Transactions on Affective Computing. She served on several NSF panels. She also served on several SIGs, including as an ACM Representative for TC14 IFIP on Entertainment Computing.

Communities**:** E-Sports, Games and Learning, Game AI, Games Research, AAMAS, CHI, SIGGRAPH
Organizations: ACM, IEEE, and IFIP

Jichen Zhu <jichen.zhu@gmail.com>

Bio: Dr. Jichen Zhu's research interest lies at the intersection of human-computer interaction, interaction/game design, and artificial intelligence (AI). Her focus is designing and developing novel human-AI interaction, especially in the forms of adaptive serious games for learning and health. She has authored more than 80 peer-reviewed research publications at communities such as CHI, FDG, AIIDE, and IUI. Her research has been funded by the National Science Foundation and National Institute of Health. She is an Associate Editor of the IEEE Transactions on Games and a board member of the Society for the Advancement of the Science of Digital Games (SASDG). She regularly serves on the organizing committees of AIIDE and FDG. Jichen Zhu received a Ph.D. in Digital Media from Georgia Tech. She also holds a MS in Computer Science from Georgia Tech, a Master of Entertainment Technology from Carnegie Mellon University, and a BS from McGill University.

Community: Serious Games Design, UI/UX, Human-Computer Interaction, Game AI, Interactive Narrative

Mirjam Palosaari Eladhari <mirjam@dsv.su.se>

Bio: Mirjam Palosaari Eladhari (PhD) is a Senior Lecturer at the Department of Computer and System Sciences at Stockholm University in Sweden, mainly teaching game design and game research methods. She also works as an independent game designer under the label Otter Play. Her dissertation in computing science (Teesside University, 2010, including work done at UC Santa Cruz, Georgia Institute of Technology, and Tokyo Institute of Technology) explored characterisation and story construction in MMO's focusing on semi-autonomous avatars applying intelligent agents. Mirjam has written more than 50 peer-reviewed publications and was involved in the creation of games both in the commercial space and in the research sector. Mirjam's research is focused on AI-based game design and interactive narratives. Current application areas include table top story-making games and games for mental health, which she explores through experimental prototypes. A main theme of her work is co-creation, in particular how interactors can add elements to games and interactive narratives in order to help them reflect on their own existence and gain new perspectives. Previously, she has worked as a lead game designer in professional capacities and various research projects, such as the EU project C2Learn. She is a board member of the Board of the Higher Education Video Game Alliance (HEVGA), Association for Digital Interactive Narratives (ARDIN), and of Society for the Advancement of the Study of Digital Games (SAGDS) which is responsible for the Foundations of Digital Games (FDG) conference's. Currently she is the vice chair of the EU COST Action INDCOR (CA18230 - Interactive Narrative Design for Complexity Representations).

Communities: Game AI, Interactive Narrative, Game Studies