Ethics and Transparency in Game Data

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ABSTRACT

While existing work has discussed ethics and fairness in relation to data generally, and a small number of papers have raised the same issues within games specifically, work on addressing fairness and ethical issues with game data collection and usage is still rare. With game AI, LLM integration, data analytics, and machine learning on the rise, a new dimension to the responsible and ethical treatment of data opens up, comprising factors unique to video games. Our goal for this workshop is, thus, to bring together researchers and professionals working in the spaces of game human–computer interaction (HCI), game data and AI, and ethics in both games and AI to discuss and identify interdisciplinary research opportunities and devise potential solutions to existing problems.

CCS CONCEPTS

• **Social and professional topics** → **Codes of ethics**; • **Computing methodologies** → **Artificial intelligence**; • **Applied computing** → **Computer games**; • **Human-centered computing** → **Human computer interaction (HCI)**.

KEYWORDS

game data, game AI, ethics, transparency, AI, Machine Learning

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1 INTRODUCTION

Recent years have seen increased interest in game data [14], with the literature containing a large number of methods and techniques for analyzing [5, 6, 11], visualizing [16, 20, 21, 29], and modeling [40, 41] gameplay data. Data is often used to categorize players and predict their actions, powering AI systems that can dynamically adapt content or provide suggestions to meet the model's idea of what the player wants or needs and, ideally, create a more enjoyable experience [17, 18, 32, 40, 41, 45]. In other contexts, data might be used to identify common gameplay patterns [11, 12, 34], create artificially intelligent players [31, 36, 42, 43], provide recommendations [8, 9, 13], or may be visualized to facilitate analysis by researchers, players, or spectators [1, 7, 21, 23–26].

With such a boom in interest and use of data for games, and especially esports, and so many people putting their eyes on the data, questions begin to emerge about the ethical and transparent use of data. These questions are not necessarily new. Beyond games, ethics and transparency in data has become a prominent topic, especially with the rise of AI systems in society [4, 30], with end-user trust of AI systems being of particular concern [2, 15]. Existing discussions of ethics in relation to game data and AI make it clear that many of the concerns surrounding AI and ethics persist in the domain of games. Mikkelsen et al. [28] and Seif El-Nasr and

Kleinman [35], for example, both discuss issues related to game data and the concept of *algorithmic bias*, which broadly involves the exclusion of subgroups due to regression or optimization of a used approach, as most statistical estimators bias towards a majority [10]. Both illustrate how biased gameplay data may result in problematic AI systems for games, such as monetization algorithms that do not consider the financial status of the player, recommendation systems that are biased against uncommon strategies, and mis-classification of players that can result in an artificially impaired experience.

Bonenfant et al. [3], additionally, point out general ethical considerations and concerns surrounding the use of big data to study gaming communities. They discuss how, while players often consent to having their in-game data being tracked, it still raises ethical questions given that players are rarely consciously aware of the tracking or the impact of their data. Melhart et al. [27], in their review of AI ethics in games from the perspective of the affective loop, discuss points related to both of the above topics alongside concerns about how AI is used to manipulate players. Players have also expressed concerns regarding data exposing them to toxicity due to how it shares their performance with others [22].

While other domains have discussed topics such as algorithmic bias or opaque systems, it is unknown the extent to which existing solutions are appropriate for games, especially given their social nature and complexity as an interactive medium. For example, Pfau et al. [33] proposed the substitution of disconnected players in online game matches by individualized generative models, which successfully leads other players to believe that they did not disconnect. If not presented in a transparent manner, remaining players could feel deceived once coming to know. In another example, there are circumstances when knowledge of a data-driven system could interfere with the game experience, or allow players to take advantage of it. This especially is the case in dynamic difficulty approaches, where figuring out the underlying rules of adjustment and exploiting them can arguably spoil a player's experience [19].

This demonstrates how games, as a domain, require focused and context-specific enquiry surrounding the ethics of data and AI. This is especially necessary as large language models (LLMs) are beginning to see increased use in the gaming sphere [37–39, 44].

2 OBJECTIVES

In this hybrid workshop, we hope to continue existing conversations and generate new ideas by bringing together researchers, analysts, practitioners, and designers within the domains of games, HCI, games user research (GUR), ethics, and AI. The hope is that, through this workshop, we will create a community around this topic, encourage continued discussion, inspire future work, and lay the foundation for ethical and sustainable data use in games. This workshop will be open for anyone to attend, regardless of whether or not they present a paper, as long as they sign up ahead. To that end we enumerate the workshop goals:

- Bring together scholars and practitioners working in the domains of games, HCI, ethics, data, and AI.
- Map the state of the art of ethics in game data and AI
- Propose potential solutions to existing problems
- Identify directions for future research
- Identify opportunities to address similar concerns outside of games
- Publish the workshop outcomes in either a white-paper or edited volume

Time	*Workshop Activity*
9:00 - 9:10	Opening and Introductions
9:10 - 11:10	Invited Talks
11:10 - 11:20	Morning Coffee Break
11:20 - 12:20	Position Paper Presentations
12:20 - 12:40	Late Breaking Presentations
12:40 - 13:30	Mapping the Domain
13:30 - 14:30	Lunch
14:30 - 15:30	Breakout Groups
15:30 - 15:45	Coffee Break
15:45 - 16:15	Group Discussion
16:15 - 16:30	Wrap Up

Table 1: The schedule for the workshop

3 PLANNED ACTIVITIES

The workshop program is intended to promote opportunities to bring together the games/game AI, ethics, HCI, Esports, GUR, and AI communities to discuss open questions related to different aspects of this domain. The workshop will consist of the following broad segments, as seen in Table 1:

- Invited Talk(s): At least one invited speaker (potentially more if time allows), with expertise in both the ethics and AI community and the game data and AI community, will give approximately a one hour talk about their work. There will be a brief question and answer session after. The workshop will begin with this talk to get participants thinking about the topic and prime them for the participant presentations and eventual group discussion.
- Presentations: Authors of accepted short position papers will give approximately 3 to 5 minute presentations of their work with a short Q&A session after each paper. The length of this segment of the workshop will be adjusted to accommodate the number of accepted submissions.
- Late Breaking Presentation: Interested parties who do not submit a position paper will have the opportunity to submit an abstract describing their interesting, ongoing work one week before the conference. There will be no review process, but those who do so will be allowed to briefly describe their work to the group. In doing so we hope to encourage greater participation from those who may not have fully realized contributions and better set up for the next activity.
- Mapping the Domain: During the invited talk and paper presentations, workshop attendees will be asked to take note of any potential new research areas or notable problems that they would like to discuss further. To facilitate this, we will use a Miro (or similar) collaborative workspace where in-person and remote attendees can compile their notes together. During the "mapping the domain" segment of the workshop we will discuss, as an entire group, the most prominent areas or problems that emerged.

- Breakout Group Discussions: Participants will break into smaller discussion groups based on the popular research areas/problems identified in the previous segment. Each group will discuss their particular topic in detail and develop either a pitch or road-map for a new research area or a potential solution for a problem. Participants will be encouraged to create breakout groups with a mix of expertise.
- Large Group Discussion: At the end of the workshop, all attendees will participate in a group discussion and present what was discussed and developed in the breakout groups. In addition, the group, as a whole, will discuss the extent to which findings apply to domains beyond games and identify opportunities for generalizability. A summary of the discussion will be posted to the workshop website after the event.

Additionally, there will be two coffee breaks, and a lunch break providing opportunities for attendees to network with one another. While the workshop itself will not provide any dinner, the hope is that attendees will take the initiative to get dinner together, to continue conversations and forge stronger connections, either as a large group or in smaller groups, pending attendance.

This workshop will be hybrid. Those who attend remotely will join a Zoom call from which they will be able to see the presenters and screen and remote presenters will present over Zoom, with their presentation projected on the in-room screen. The remote attendees will additionally break into groups over Zoom using the Zoom breakout room feature. One of the workshop organizers will be attending to the zoom room at all times and will coordinate with in-person organizers to convey remote attendees input to the room.

4 ORGANIZERS

A broad view of ethical concerns across disciplines is necessary to create and sustain a community of practice in game development, game studies, and technical games research. This group of experts is uniquely qualified to lead such an effort. We represent a broad and diverse group across several dimensions in terms of research methods, disciplines, stakeholder interactions, and connections with communities. We have a successful track record of research collaborations with a number of CHI, UMUAI, IUI, and Transactions of Games publications, and joint leadership activities among group members with co-organization of the IEEE Conference on Games, Intelligent Narrative Technologies workshop series, AI in Interactive Digital Entertainment (AIIDE), and prior Esports workshops at CHI and CHI PLAY.

- Erica Kleinman: (Main Organizer) Erica is a Post-Doctoral Research Associate at Northeastern University in the Ghost Lab. Erica's work studies how data-driven assistance impacts how players learn gameplay. She specifically examining the ways that computational assistants impact self-regulated learning in complex games, especially esports. Prior to joining the Ghost Lab, Erica worked with Dr. Magy Seif El-Nasr on a number of novel human-in-the-loop methods and systems meant to increase transparency in machine learning and data analytics, and they published a paper together on ethics in data driven game development in the proceedings for the Foundations of Digital Games conference in 2020.
- Magy Seif El-Nasr: Magy is a professor at University of California-Santa Cruz and is the director of the GUII Lab. She has expertise in areas at the intersection of Artificial Intelligence, Human Computer Interaction, Learning Science and Computer Science Education. Through her tenure, she worked on various systems including systems that model the human emotion process and systems that model human behaviors in mobile games as well as serious games. During the past years, she developed several innovative technologies to enable designers to track and understand problem-solving behavior through game data science and recently published a textbook entitled: *Game Data Science*, which follows from her seminal book entitled: *Game Analytics* which is the first book published on the subject back in 2013.
- Johannes Pfau: Johannes is an assistant professor at Utrecht University. His dissertation implemented individual generative player models to enhance player experience for multiple use cases. He published several approaches of machine learning and artificial intelligence based on game and player data and runs a game analytics project that strives for producing transparent insights while not harming individual privacy.
- Simone Kriglstein: Simone is an associate professor at Masaryk University, as well as a scientist at the Austrian Institute of Technology. She specializes in designing and evaluating user interfaces and interaction methods in different fields, including games. Her work has been published in international conference proceedings such as the Proceedings of the SIGCHI Conference on Human Factors in Computing Systems and journals like Computer & Graphics and Computers in Human Behavior.
- Günter Wallner: Günter is Professor for Game Computing at Johannes Kepler University Linz and holds an Adjunct Professorship at Ontaria Tech University. His work particularly centers on understanding player behavior in games and on researching methods to explore and communicate the collected data to derive actionable insights for game design and development. As part of this, he is working on data visualizations to support the analysis of increasingly large-scale player behavioral datasets used in game analytics. He has served as general chair for CHI PLAY 2021 and is editor of the *Data Analytics Applications in Gaming and Entertainment* book.
- David Melhart: David Melhart is a Senior Platform Engineer at modl.ai and a Postdoctoral Researcher at the Institute of Digital Games, University of Malta. His research focuses on Machine Learning, Affective Computing, and Games User Modelling. He was the Communication Chair of FDG 2020, Workshop and Panel Chair of FDG 2023, keynote speaker at the Ethics of Game AI Workshop at the European Conference of Artificial Intelligence, and has been a recurring organiser and Publicity Chair of the Summer School series on Artificial Intelligence and Games (2018-2023). He is currently serving as an Editorial Assistant for IEEE Transactions on Games, Guest Editor for Frontiers in Virtual Reality and Human Behaviour, and Review Editor for Frontiers in Human-Media Interaction (specialty section of Frontiers in ICT, Frontiers

in Psychology, Frontiers in Digital Humanities and Frontiers in Computer Science).

- Georgios N. Yannakakis: Georgios is a Professor and Director of the Institute of Digital Games, University of Malta (UM) and a co-founder of modl.ai. He does research at the crossroads of artificial intelligence, affective computing, games and computational creativity. He has published more than 300 papers in the aforementioned fields and his work has been cited broadly. He is currently the Editor in Chief of the *IEEE Transactions on Games*. He has been the General Chair of key conferences in the area of game artificial intelligence (IEEE CIG 2010) and games research (FDG 2013, 2020). He is the co-author of the *Artificial Intelligence and Games* textbook and the co-organizer of the *AI and Games Summer School* series.
- Jichen Zhu: Jichen is an Associate Professor of Digital Design at the IT University of Copenhagen, Denmark. Her 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 personalized games for learning and health. She has co-authored more than 100 peer-reviewed research publications and received several Best Paper Awards.
- Benjamin Watson: Benjamin Watson is Associate Professor of Computer Science at North Carolina State University. His Visual Experience Lab focuses on the engineering of visual meaning, and spans the intersections between graphics, perception, design, and interaction. His work in gaming and esports includes research on rendering the effects of visual and temporal level of detail; as well as organizing a panel at the ACM SIGGRAPH, and workshops at SIGGRAPH, ACM CHI and the Shonan Center in Japan. Watson co-chaired the ACM Interactive 3D Graphics and Games (I3D) 2006 conference.
- Casper Harteveld: Dr. Casper Harteveld is an Associate Professor of Game Design at Northeastern University. His research focuses on two efforts: (1) advance the use of games and gamification for studying and improving human behavior; and (2) empower people to design, use, and analyze games and gamification for education and social impact. For both efforts he leverages game data and artificial intelligence. Besides his main research interests, he also seeks to advance the domain of game science itself by studying new trends (esports), tackling important issues (toxicity), and developing research methods (new survey instruments such as the miniPXI). He received several individual recognitions, best or honorable mention awards, and over $13M in funding.

5 CALL FOR PARTICIPATION

The following call for participation will be distributed across various communities' listservs, specifically targeting communities around games, game HCI, games user research, esports, affective computing and games, game AI, general HCI, AI, HCI of AI, and UX of and explainable AI, ethics, and ethics of data and AI:

The "Ethics and Transparency in Game Data" workshop aims to bring together researchers and practitioners in the fields of games, esports, HCI, AI, and ethics to discuss issues of ethics in the use of gameplay data. The workshop will consist of invited talks related to Ethics, AI, and Games, short paper and late breaking work presentations, and breakout sessions to discuss new research areas and open problems.

The workshop welcomes 1-2 page position papers on topics related to issues of ethics and transparency in the use of gameplay data. Topics may include, but are not limited to, ethical questions related to: player modeling; artificial intelligence and machine learning; data trackers; AI assistants/coaches; data visualization; game user research; large language models, and analytics. Particular interest is in identification of new research areas and proposed solutions to existing problems. Additionally, we welcome short abstracts (up to 200 words) describing late breaking work, which may include early ideas of works in progress. Authors will have the chance to briefly present and discuss their late breaking work during the workshop. Submissions are not mandatory for workshop attendance but registration is.

Papers should be submitted via easychair using the ACM Master Article Submission Templates (single column). Papers submitted by August 31st 2024 will receive a response before the early registration deadline for CHIPlay. The final deadline for submission is September 20th 2024. Late breaking work abstracts will be accepted up to one week before the conference. Submissions will be reviewed by the organizers and selections will be made based on quality and relevance. Review is single blind and submissions should **NOT** be anonymous. At least one author must attend the workshop either in person or online. The workshop will be hybrid, and remote attendance will be an option for both attendees and authors. Workshop participants need to register for CHI PLAY. Further details can be found at https://gamedataethics.github.io/gamedataethics/.

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