Erica M. Kleinman

Assistant Research Professor, Ghost Lab Co–Director, Instructor, College of Arts, Media, and Design, Northeastern University

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References Available Upon Request

Education

SEPT 2020 - JUNE 2023

University of California Santa Cruz – *Doctor of Philosophy* – Computational Media

SEPT 2017 - MAY 2020

Northeastern University – *Master of Science* – Computer Science

SEPT 2014 - JUNE 2016

Drexel University – *Master of Science* – Digital Media

SEPT 2009 - MAY 2013

Skidmore College – *Bachelor of Arts* – Film Studies

Awards and Recognition

2022 - 2023 - UCSC JACK BASKIN & PEGGY DOWNES FELLOWSHIP
2022 - IEEE TOG FAST AND FURIOUS AWARD FOR QUICK, HIGH QUALITY REVIEW TURN AROUND
2020 - FDG2020 EXCEPTIONAL PAPER AWARD
2019 - FDG2019 BEST PAPER NOMINEE
2019 - GDC2019 GAME NARRATIVE REVIEW COMPETITION PLATINUM AWARd
2018 - GDC2018 GAME NARRATIVE REVIEW COMPETITION GOLD AWARD
2016 - DREXEL GRADUATE COLLEGE RESEARCH EXCELLENCE AWARD
2015 - CHIPLAY STUDENT GAME DESIGN COMPETITION RUNNER UP
2014 - 2016 - DREXEL UNIVERSITY DEAN'S FELLOWSHIP
2013 - SKIDMORE COLLEGE BA CUM LAUDE
2010 - 2013 SKIDMORE COLLEGE DEAN'S LIST

Publications

JOURNAL PAPERS   *7 Papers*

- ❖ *Yang, D., **Kleinman, E.**, Harteveld, C., GPT for Games: An Updated Scoping Review (2020-2024). IEEE Transactions on Games.*

- ❖ ***Erica Kleinman**, Jason Xu, Johannes Pfau, and Magy Seif El-Nasr. 2024. "Trust the Process": An Exploratory Study of Process Visualizations for Self-Reflection in League of Legends. Proc. ACM Hum.-Comput. Interact. 8, CHI PLAY, Article 346 (October 2024), 28 pages.*

- ❖ ***Kleinman, E.**, Habibi, R., Yao, Y., Gayle, C., & Seif El-Nasr, M. (2022). " A Time and Phase for Everything"-Towards A Self Regulated Learning Perspective on Computational Support for Esports. Proceedings of the ACM on Human-Computer Interaction, 6(CHI PLAY), 1-27.*

- ❖ ***Kleinman, E.**, Shergadwala, M., Teng, Z., Villareale, J., Baryant, A., Zhu, J., Seif El-Nasr, M. (2022). Analyzing Students' Problem-Solving Sequences: A Human-in-the-loop Approach. Journal of Learning Analytics.*

- **_Kleinman E_**, _Gayle C, and Seif El-Nasr M (2021) "Because I'm Bad at the Game!" A Microanalytic Study of Self-Regulated Learning in League of Legends. Front. Psychol. 12:780234. doi: 10.3389/fpsyg.2021.780234_

- **_Kleinman, E.,_** _Preetham, N., Teng, Z., Bryant, A., & Seif El-Nasr, M. (2021). " What Happened Here!?" A Taxonomy for User Interaction with Spatio-Temporal Game Data Visualization. Proceedings of the ACM on Human-Computer Interaction, 5(CHI PLAY), 1-27._

- **_Kleinman, E._**, _Karo, K., & Zhu, J. (2019). From Immersion to Metagaming: Understanding Rewind Mechanics in Interactive Storytelling. Entertainment Computing._

PEER-REVIEWED CONFERENCE PAPERS   *25 Papers*

- **_Kleinman, E._**, _Jahani, R., McGivney, E., Kosa, M., Cooper, S., Harteveld, C. (2025, May). From Locked Rooms to Open Minds: Escape Room Best Practices to Enhance Reflection in Extended Reality Learning Environments. In Proceedings of the CHI Conference on Human Factors in Computing Systems._

- _Lee, H.,_ **_Kleinman, E._**, _Kim, N., Park, S., Harteveld, C., Lee, B. (2025, May). Crafting Champions: An Observation Study of Esports Coaching Processes. In Proceedings of the CHI Conference on Human Factors in Computing Systems._

- _Harteveld, C., Javvaji, N., Mohaddesi, O.,_ **_Kleinman, E._**_, Daniels, K., Jackson, D., & Troiano, G. M. (2024, July). RePresent: Enabling Access to Justice for Pro Se Litigants via Co-Authored Serious Games. In Proceedings of the 2024 ACM Designing Interactive Systems Conference (pp. 3225-3242)._

- **_Kleinman, E._**, _Habibi, R., Powell, G. B., Reeves, B., Prather, J., & Seif El-Nasr, M. (2024, May). ``Backseat Gaming" A Study of Co-Regulated Learning within a Collegiate Male Esports Community. In Proceedings of the CHI Conference on Human Factors in Computing Systems (pp. 1-14)._

- _Maram, S. S.,_ **_Kleinman, E._**_, Villareale, J., Zhu, J., & Seif El-Nasr, M. (2024, May). " Ah! I see"-Facilitating Process Reflection in Gameplay through a Novel Spatio-Temporal Visualization System. In Proceedings of the CHI Conference on Human Factors in Computing Systems (pp. 1-19)._

- _Pfau, J., Charan, M.,_ **_Kleinman, E._**_, & Seif El-Nasr, M. (2024, May). Damage Optimization in Video Games: A Player-Driven Co-Creative Approach. In Proceedings of the CHI Conference on Human Factors in Computing Systems (pp. 1-16)._

- _Yang, D.,_ **_Kleinman, E._**_, Troiano, G. M., Tochilnikova, E., & Harteveld, C. (2024, May). Snake Story: Exploring Game Mechanics for Mixed-Initiative Co-creative Storytelling Games. In Proceedings of the 19th International Conference on the Foundations of Digital Games (pp. 1-11)._

- _Yang, D.,_ **_Kleinman, E._**_, & Harteveld, C. (2024). GPT for Games: A Scoping Review (2020-2023). arXiv preprint arXiv:2404.17794._

- **_Kleinman, E._**_, Villareale, J., Shergadwala, M. N., Teng, Z., Bryant, A., Zhu, J., & El-Nasr, M. S. (2023, April). " What else can I do?" Examining the Impact of Community Data on Adaptation and Quality of Reflection in an Educational Game. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (pp. 1-12)._

- **_Kleinman, E.,_** _Villareale, J., Shergadwala, M., Teng, Z., Bryant, A., Zhu, J., Seif El-Nasr, M. (2022). Towards an Understanding of how Players Make Meaning from Post-Play Process Visualizations. ICEC 2022._

- ❖ **Kleinman, E.,** Shergadwala, M., Seif El-Nasr, M. (2022). *Kills, Deaths, and (Computational) Assists: Identifying Opportunities for Computational Support in Esport Learning. 2022 CHI Conference on Human Factors in Computing Systems.*
- ❖ *Partlan, N.,* **Kleinman, E.,** *Howe, J., Ahmad, S., Marsella, S., and Seif El-Nasr, M. (2021). Design-Driven Requirements for Computationally Co-Creative Game AI Design Tools. Foundations of Digital Games.*
- ❖ **Kleinman, E.,** *Chojnacki, S., and Seif El-Nasr, M. (2021). The Gangs All Here: How People Used Games to cope with COVID19 Quarantine. CHI 2021.*
- ❖ *Carstensdottir, E.,* **Kleinman, E.,** *Williams, R., and Seif El-Nasr, M. (2021). "Naked and on fire":Examining Player Agency Experiences in Narrative-Focused Gameplay. CHI 2021.*
- ❖ *FDG 2020 EXCEPTIONAL PAPER RECIPIENT:* **Kleinman, E.,** *Ahmad, S., Teng, Z., Bryant, A., Nguyen, T. H. D., Harteveld, C., & Seif El-Nasr, M. (2020). "And then they Died": Using Action Sequences for Data-Driven, Context-Aware Gameplay Analysis. Foundations of Digital Games.*
- ❖ *Seif El-Nasr, M.,* **Kleinman, E.** *(2020). Data-Driven Game Development: Ethical Considerations. Foundations of Digital Games.*
- ❖ *Jemmali, C.,* **Kleinman, E.,** *Bunian, S.,Almeda, M.V., Rowe, E., & Seif El-Nasr, M. (2020). MAADS: Mixed-Methods Approach for the Analysis of Debugging Sequences of Beginner Programmers. Technical Symposium on Computer Science Education.*
- ❖ *Almeda, M.V.,* **Kleinman, E.,** *Jemmali, C., Ithier, C., Rowe, E., & Seif El-Nasr, M. (2020). Labeling Debugging in May's Journey Gameplay. Technical Symposium on Computer Science Education.*
- ❖ **Kleinman, E.,** *Carstensdottir, E., & Seif El-Nasr, M. (2019). A Model for Analyzing Diegesis in Digital Narrative Games. International Conference on Interactive Digital Storytelling.*
- ❖ *Ahmad, S., Bryant, A.,* **Kleinman, E.,** *Teng, Z., Nguyen, T. H. D., & Seif El-Nasr, M. (2019) Modeling Individual and Team Behavior through Spatio-Temporal Analysis. Annual Symposium on Computer-Human Interaction in Play.*
- ❖ *Carstensdottir, E.,* **Kleinman, E.,** *& Seif El-Nasr, M. (2019) Player Interaction in Narrative Games: Structure and Narrative Progression Mechanics. Foundations of Digital Games.*
- ❖ *FDG 2019 BEST PAPER NOMINEE:* *Harteveld, C.,* **Kleinman, E.,** *Rizzo, P., Schouten, D., Nguyen, T.H., Liberty, S., Kimbrough, W., Fombelle, P., & Seif El-Nasr, M. (2019) Teamwork and Adaptation in Games (TAG): A Survey to Gauge Teamwork. Foundations of Digital Games.*
- ❖ **Kleinman, E.,** *Carstensdottir, E., & Seif El-Nasr, M. (2018) Going Forward by Going Back: Re-defining Rewind Mechanics in Narrative Games. Foundations of Digital Games.*
- ❖ *Partlan, N., Carstensdottir, E., Snodgrass, S.,* **Kleinman, E.,** *Smith, G., Harteveld, C., & Seif El-Nasr, M. (2018) Exploratory Automated Analysis of Structural Features of Interactive Narrative. Artificial Intelligence and Interactive Digital Entertainment Conference.*
- ❖ **Kleinman E.,** *Fox V., Zhu J. (2016) Rough Draft: Towards a Framework for Metagaming Mechanics of Rewinding in Interactive Storytelling. International Conference on Interactive Digital Storytelling.*

PEER-REVIEWED WORKSHOP PAPERS   *4 Papers*

- ❖ **Kleinman, E.,** *Lynn, S., Loyall, B., Seif El-Nasr, M., (2023). Towards a Human-in-the-Loop System for Authoring Game AI using Behavior Languages, In The First Workshop on Human-AI Interaction through Play, Foundations of Digital Games.*

- ❖ ***Kleinman, E.***, *Seif El-Nasr, M.. (2021). Using Data to "Git Gud": A Push for a Player-Centric Approach to the Use of Data in Esports, In EHPHCI: Esports and High Performance HCI Workshop, 2021 CHI Conference on Human Factors in Computing Systems.*
- ❖ ***Kleinman, E.***, *Seif El-Nasr, M. (2020). Interactive Visualization For Strategy Acquisition In Esports Spectatorship. SEEGames Workshop, 2020 CHI Conference on Human Factors in Computing Systems.*
- ❖ *Partlan, N., Carstensdottir, E.,* ***Kleinman, E.***, *Snodgrass, S., Harteveld, C.,Smith, G., Matuk, C., Sutherland, S. C., & Seif El-Nasr, M. (2019) Evaluation of a Graph-Based Representation for Interactive Narrative. Foundations of Digital Games.*

OTHER (SHORT PAPERS, POSTERS, AND DEMOS)   *5 Papers*

- ❖ ***Erica Kleinman*** *and Casper Harteveld. 2024. The Untapped Potential of Escape Rooms as Gamified Research Environments. In Companion Proceedings of the Annual Symposium on Computer-Human Interaction in Play (CHI PLAY Companion '24), October 14–17, 2024, Tampere, Finland. ACM, New York, NY, USA, 4 pages.*
- ❖ *Ebrahimi, A., Cox, J.,* ***Kleinman, E.***, *& De Schutter, B. (2024, May). Hidden Heroes: A thematic analysis of a game jam designed around authentic stories. In Proceedings of the 19th International Conference on the Foundations of Digital Games (pp. 1-4).*
- ❖ *Jemmali, C.,* ***Kleinman, E.***, *Bunian, S., Almeda, M. V., Rowe, E., & Seif El-Nasr, M. (2019) Using Game Design Mechanics as Metaphors to Enhance Learning of Introductory Programming Concepts. Foundations of Digital Games.*
- ❖ *Carstensdottir, E.,* ***Kleinman, E.***, *Seif El-Nasr, M. (2017) Towards an Interaction Model for Interactive Narratives. International Conference on Interactive Digital Storytelling.*
- ❖ *CHIPLAY 2015 STUDENT GAME DESIGN COMPETITION RUNNER UP: Baranoski, J.,* ***Kleinman, E.***, *Wang, Z., Tucker, M., Ahnert, J., Schell, J., Doshi, R., Rank, S., & Zhu, J. (2015) Matsya: A Cultural Game of Flow and Balance. Annual Symposium on Computer-Human Interaction in Play.*

Talks and Presentations

- ❖ ***Kleinman, E.***, *Shergadwala, M., Seif El-Nasr, M. (2021) "Tell me Why I Keep Dying": A Qualitative Study of User Requirements for AI Assistants for Esports. Esports Conference, University of California, Irvine.*
- ❖ *Ahmad, S.,* ***Kleinman, E.***, *& Seif El-Nasr, M. (2020) New Methodology for Interactive Behavior Analytics. Game Intelligence and Informatics Workshop, PAKDD.*
- ❖ ***Kleinman, E.***, *Seif El-Nasr, M. (2020) A Detailed Look at Users' Experience through Interactive Visualizations of their Data. Games User Research Virtual Summer Camp.*

Research Experience

JULY 2023 - PRESENT

Ghost Lab (Northeastern University) – *Postdoctoral Research Associate*

- Overseen by Dr. Casper Harteveld
- Conducted Research in collaboration with students and faculty at the intersection of games, learning, and Human Computer Interaction

- Advised PhD students
- Taught Courses in the Games Program
- Contributed to grant writing efforts
- Worked on Grants funded by NSF

NOVEMBER 2016 - JUNE 2023

GUII Lab (Northeastern University and University of California, Santa Cruz) –
Graduate Research Assistant

- Advised by Dr. Magy Seif El-Nasr
- Conducted Research in collaboration with students and faculty on Human-Computer Interaction looking at Explainable AI, UX of AI, Learning, Esports and Complex Gameplay, Player and User Modeling, and Interactive Narrative
- Taught as both TA and Grad Student Instructor
- Mentored and Advised junior students
- Worked on Grants funded by NSF, DARPA, and ONR

Teaching Experience

- Instructor: GAME 2500 (Northeastern) - Foundations of Game Design (Summer 2 2024, Spring 2025)
- Instructor: GSND 5111 (Northeastern) - Graduate Seminar (Fall 2024)
- Instructor: GAME 3700 (Northeastern) - Rapid Idea Prototyping (Spring 2024)
- Instructor: GAME 251 (UCSC) - Games User Research (Winter 2023)
- Teaching Assistant: HCI 271 (UCSC) - HCI Capstone (Spring 2022)

Mentoring and Advising Experience

- Co-Advising: Uttkarsh Narayan - PhD Student, Interdisciplinary Design and Media, Northeastern University
- Co-Advising: Daijin Yang - PhD Student, Interdisciplinary Design and Media, Northeastern University
- Mentoring: Alayt Issak - PhD Student, Interdisciplinary Design and Media, Northeastern University
- Mentoring: Sai Siddartha Maram - PhD Student, Computational Media, UCSC
- Mentoring: Stefany Arevalo - Masters Student, Computational Media, UCSC
- Mentoring: Jason Xu - Undergraduate, Computational Media, UCSC
- Mentoring: Derusha Baskaran - Masters Student, HCI, UCSC
- Mentoring: Christian Gayle - Masters Student, Games and Playable Media, UCSC
- Mentoring: Yichen Yao - Masters Student, Games and Playable Media, UCSC
- Mentoring: Yuanzhu Wu - Masters Student, Games and Playable Media, UCSC
- Mentoring: Sara Chojnacki - Masters Student, Computer Science, Northeastern University

External Service

ORGANIZATION AND LEADERSHIP

- ACM CHIPlay Annual Symposium on Computer-Human Interaction in Play
  - Student Game Design Competition Co-Chair (2025)
  - Associate Char (2025)
  - Transparency and Ethics in Game Data Workshop General Chair
- ACM CHI Conference on Human Factors in Computer Systems
  - Assistant to the SCs of Usability and UX (2020 and 2021)
- Foundations of Digital Games
  - Track Chair (Game Analytics and Visualization) (2024)
- AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment
  - Esports Analytics Workshop Co-Organizer (2022)
- IEEE Conference on Games (COG)
  - Associate Chair (2023)

PEER REVIEW

- ACM CHI Conference on Human Factors in Computer Systems
- ACM CHIPlay Annual Symposium on Computer-Human Interaction in Play
- International Conference of Interactive Digital Storytelling
- Foundations of Digital Games
- IEEE Conference on Games
- IEEE Transactions on Games
- Entertainment Computing
- ACM Web Conference