

# Kutub Gandhi

Passionate researcher with strong interpersonal skills, looking to further education / educational technology via engineering, design, and product management roles.

## Research & Design

- Established researcher in educational game design, AI usage for instructors, and usage of learning frameworks. Publications below.
- Design: built three full games, conducting hundreds of hours of interviews with subject matter experts and playtesters.
  - Won the Serious Play International Games Education Award for game *Other People's Money* for its effectiveness as both “a powerful educational tool and a call to action”
- Research: Strong proficiency in statistical techniques, qualitative analysis methods, study design, and user experience research (e.g. user stories, epics, telemetry) through survey and intervention based projects.
- Communication: Worked with large teams including academics and non-academics. Experienced research communicator, identifying key takeaways for different audiences.
- Problem Solving: Experienced through multiple research projects in techniques for gathering relevant data, identifying potential solutions, and executing on changes.

## Pedagogy & Work with Children

- Taught Northeastern University *Programming in C++* course with excellent student evaluations.
- Built and taught Rice University *Philosophy and Games* course for two semesters with excellent student evaluations.
- Took a pedagogy course, through which I built assignments, schedules, and exams.
- Lead TA (led class sessions and created materials) twice.
- Built and taught a 4 week game design summer camp for high school students.
- Teaching four class sessions each semester to high school students via NU Splash.
- Volunteered after school at King Elementary.

6th Year PhD candidate, Computer Science

Northeastern University

See [my website](#) for writing, publications, and games.

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## Technical Skills

- B.A. Computer Science – Rice University.
- Experienced game programmer, having built an urban planning education game w/ ~2,700 LOC alongside other smaller projects. Have taught a game programming summer camp and TA'd classes on Unity / game engines.
- Built an enterprise grade Typescript + C# tool for the rapid development of psychological tests via Figma.
- Analyzed player data from CitSci project; created data visualizations and Q-learning AI / ML recommender systems to boost user engagement.
- AI / ML engineer at EOG resources (Summer 2018): Built physics simulation verified as 3x more accurate and ~100x faster than previous simulation. Presented to EOG C-suite.
- AI / Data Scientist at Georgia Tech (Summer 2019): Built time series analysis software to enable identification and repair of faulty flood sensors.
- Built HTML/CSS/JS game engine for text games.
- Strong Proficiency in: Godot (C#), Unity, Linux, Python, C, C++, Functional Programming, Data Science
- Proficiency in: Full Stack Web Development, DevOps, P3, Data Visualization, SQL, Machine Learning

## Leadership & Extracurricular

- Facilitator and Treasurer at housing cooperative. 501c3 organization w/ \$500K in revenue.
  - Reworking financial policies, managing revenue, handling resident disagreements, and organizing meetings regarding repairs, budgetary concerns, and financial policy.
- Familiar with best practices and tools for team success (e.g. Agile / Scrum, Jira, Project Roadmapping w/ Gantt)
- Past Student Government Representative for Sid Richardson College.
  - Spearheaded an inclusivity initiative to promote mental health & community and won the college's Joan Whitney service award.
- Two time leader in year long new student mentoring program.
- Completed MS-150 (150 mile charity bike ride) twice.

## In Progress Projects

- Exploring Instructors' Requirements for AI-Assistive Tools for Co-Creation
  - Interview study for requirements gathering; what AI support are instructors looking for in their classes?
- Understanding the Effectiveness of Text for Communicating In-Game Learning Goals
  - Mixed-Methods A/B test of game design elements (specifically “reflective text”) that affect the communication of learning goals within a game.
- Educational Game Co-Design with AI Assistance For Instructors.
  - Wizard of Oz study looking at how instructors utilize AI for educational game co-design.

## Selected Publications (reverse-chronological)

- Gandhi, K. & Cooper, S. (2024) “Going From a ‘Well Made Slideshow’ to a Full Game: Insights From the Development of an Urban Planning Educational Game” In *Meaningful Play 2024*.
  - Details the development and iteration process of an urban planning education game, used concept mapping to evaluate changes in user mental models in a constructivist manner.
- Josh Aaron Miller\*, Kutub Gandhi\*, (\*Joint First Authors) Matthew Alexander Whitby, Mehmet Kosa, Seth Cooper, Elisa D. Mekler, and Ioanna Iacovides. 2024. A Design Framework for Reflective Play. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24)*. Association for Computing Machinery, New York, NY, USA, Article 519, 1–21. <https://doi.org/10.1145/3613904.3642455>
  - Meta analysis of other works in promoting reflection through play, along with a critical look at the design of a variety of games.
- Kutub Gandhi. 2023. Cool Little Playable Things: Supporting Transformational Games Outside Formal Contexts. In *Companion Proceedings of the Annual Symposium on Computer-Human Interaction in Play (CHI PLAY Companion '23)*. Association for Computing Machinery, New York, NY, USA, 318–321. <https://doi.org/10.1145/3573382.3616032>
  - Opinion piece and literature review of explorables (intelligent tutoring systems) for doctoral consortium
- Gandhi, K., Miller, J. A., & Cooper, S. (2022, September). "Philosophy is Seeped into Every Brick" - Weaving Reflective Elements into Mass-Market Games. In *The 17th International Conference on the Foundations of Digital Games (FDG) 2022* (pp. 1-9).
  - Large scale online survey and qualitative analysis to identify techniques used in mass-market games to promote social and emotional learning (SEL)
- Miller, J.A., Gandhi, K., Gander, A. and Cooper, S., 2022. A Survey of Citizen Science Gaming Experiences. *Citizen Science: Theory and Practice*, 7(1), p.34. DOI: <http://doi.org/10.5334/cstp.500>
  - Large scale online survey and qualitative analysis to understand play experience in citizen science games.
- Gandhi, K., Spatharioti, S. E., Eustis, S., Wylie, S., Cooper, S. (2022, November) Performance of Paid and Volunteer Image Labeling in Citizen Science — A Retrospective Analysis. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing*
  - Statistical comparison of accuracy measures between volunteers and paid workers for image labeling. Finding that volunteers had a far higher rate of accuracy.
- Gandhi, K., Miller, J. A., Spatharioti, S. E., Apte, A., Fatehi, B., Wylie, S., & Cooper, S. (2021, August). A Comparison of Augmented Reality and Browser Versions of a Citizen Science Game. In *The 16th International Conference on the Foundations of Digital Games (FDG) 2021* (pp. 1-8).
  - Mixed methods A/B test comparing digital game to XR variant, and its implications for citizen science games. XR games are more enjoyable, but have accessibility issues.

## Professional References

Seth Cooper, advisor and professor of Computer Science at Northeastern University ([se.cooper@northeastern.edu](mailto:se.cooper@northeastern.edu))

Erik Harpstead, Senior Researcher at Carnegie Mellon University ([harpstead@cmu.edu](mailto:harpstead@cmu.edu))

Mike Shah, professor of Computer Science at Yale University ([mshah.475@gmail.com](mailto:mshah.475@gmail.com))

Bob De Schutter, professor of Computer Science at Northeastern University ([b.deschutter@northeastern.edu](mailto:b.deschutter@northeastern.edu))