

EDA (RUTING) ZHANG

Summary

I am dedicated to facilitating collaborative learning and civic engagement through designing interactive public spaces for people from diverse backgrounds. I use research methods including design-based research (DBR), qualitative, quantitative and learning analytics in order to design and build more inclusive and playful learning environments.

Formal Education

Fall 2018 – now	University of Wisconsin–Madison, Madison, WI Ph.D., Curriculum & Instruction (Digital Media) Advisor: Prof. Matthew Berland & Prof. Peter Wardrip
Fall 2012 – Spring 2014	Michigan State University, East Lansing, MI B.A. Linguistics Advisor: Prof. Paula Winke
Fall 2008 – Spring 2012	Shanghai Normal University, Shanghai, China B.S. Education Management

Skills

Programming:

R/Python/Stata/H5/CSS/P5.js

Research Methods:

DBR/Grounded theory/Case study/Data Mining, Processing, & Analysis/Think-aloud & Interviews/Participatory Design/Factor Analysis

Design:Photoshop/Premiere/In Design/Lightroom/Character Animator/Rhino/Sketch/Unity/SketchUp/Storyboarding/Visioning/Wire-framing/Prototyping

Experience Highlights

New York Hall of Science (NYSCI)

- **Rainbow Agents Project (ongoing)**

Investigate a collaborative game that foregrounds computer science and social interaction to better serve learners from underserved communities in informal environments. with Prof. Matthew Berland(UW-Madison) ; Dr. Leilah Lyons (NSF); Dr. Mac Cannady(UC Berkeley); Dr. Vishesh Kuma (Northwestern); Dr. Stephen Uzzo(NYSCI)

- **Innovative Institute Project (ongoing)**

Investigate how to engage young people in engineering and computer science through computational making and social entrepreneurship. with Dr. Elham Beheshtian(ETS); Dr. Stephen Uzzo (NYSCI)

Children's Museum of Pittsburgh (CMP)

- **Analyzing How Maker Activities Engage Learners Differently (AERA) | Paper**
Investigated variations in learner engagement. We considered engagement through the lens of the seeking and sharing resources measurement tool. with Prof. Peter Wardrip (UW Madison); Dr. Annie White (Fred Rogers Center); Katie Todd (CMP); Alison Bank (CMP)
- **Exploring Different Facilitator Roles in Maker-based Learning (ICLS) | Poster**
Explored and investigated the contexts and environments in which kids seek to learn more about materials, tools as well as the process of making. with Prof. Peter Wardrip (UW Madison); Dr. Annie White (Fred Rogers Center); Alison Bank (CMP)

Carnegie Science Center

- **Sensing Curiosity in Play and Responding (SCIPR) Project | DBR | Papers**
Designed and researched game-based interventions for marginalized STEM identity middle school students. with Prof. Jessica Hammer; Prof. Geoff Kaufman (Carnegie Mellon University); Dr. Alexandra To (Northeastern University); Elaine Faith (Shell Game)

Madison Children's Museum with Prof. Peter Wardrip

- **Needs Assessment Project | interviews & observations | Executive Report**
Investigated whether and what kind of program assessment could be beneficial to Children's Museum. Conducted interviews, observations and designed PID project.
- **Public Interactive Display Project (PID) | Exhibit**
PID is a public interactive visualization using LEGO blocks. The project aimed at using a non-obtrusive tool to collect data-in-place, and support decision-making process of the museum professionals

CS Education Research with Prof. Adalbert Gerald Soosai Raj (UC San Diego)

- **Live-coding Project | Mixed Research Method | Paper**

Eda (Ruting) Zhang CV [2022/04/07]

Investigated live-coding as a pedagogy in teaching programming.

- Language in CS Ed | Mixed Research Method | Paper

Examined the effect of using one's native language on students' engagement, interaction and learning outcome in computer science classes.

Independent Game Design & Development with Cornell University

- Onestory Game Design | DBR | Paper

Designed, and researched Storytelling games for foreign language classroom use. with Prof. Malte Jung (Cornell); Dr. Gabe Culbertson (Google); Dr. Solace Shen (Cornell)

Professional Employment

Fall 2021- Now	Research Associate, NYSCI Investigate how to promote interaction and STEM learning in informal environments especially for traditionally underrepresented groups in the STEM fields.
Fall 2019 – Fall 2020	Graduate Research Assistant, University of Wisconsin–Madison <i>Designing for Thinking Dispositions in STEM Classes Using Simple VR</i> Designed and studied an interactive simple VR tool to engage intermediate school students thinking dispositions in STEM classes.
Fall 2018- now	Teaching Assistant, University of Wisconsin–Madison with Dr. Krista-lee Malone <i>Videogames and Learning</i>
Aug 2018, Jan 2017	Project Manager, Hujiang Educational Technology Inc., Shanghai Lead AI Learning Lab in researching and developing intelligent tutors for the company. Supervised by Dr. Donghai Xia (Microsoft)
Aug 2014- May 2016	High School Instructor, Kiski Area High School, Pennsylvania Developed and implemented technology-integrated Chinese lessons for Chinese learners of all proficiency levels.
Mar 2013 – Jun 2014	Writing Consultant, Writing Center; Michigan State University Advised undergraduate and graduate students on their research papers, essays, class projects and resumes.

Publications & Presentations

1. Selvaraj, A., **Zhang, E.**, Porter, L., & Soosai Raj, A. G. (2021, June). Live Coding: A Review of Literature. In *Proceedings of the 26th ACM Conference on Innovation and Technology in Computer Science Education V. 1* (pp. 164-170)..
2. Raj, A. G. S., Gu, P., **Zhang, E.**, Williams, J., Halverson, R., & Patel, J. M. (2020, February). Live-coding vs Static Code Examples: Which is better with respect to Student Learning and Cognitive Load?. In *Proceedings of the Twenty-Second Australasian Computing Education Conference* (pp. 152-159).
3. Raj, A. G. S., Zhang, H., Abhyankar, V., Mukerjee, S., **Zhang, E.**, Williams, J., ... & Patel, J. M. (2019, November). Impact of bilingual cs education on student learning and engagement in a data structures course. In *Proceedings of the 19th Koli Calling International Conference on Computing Education Research* (pp. 1-10).
4. Pellicone, A., Lyons, L., Kumar, V., **Zhang, E.**, & Berland, M. (2019, October). Rainbow Agents: A Collaborative Game For Computational Literacy. In *Extended Abstracts of the Annual Symposium on Computer-Human Interaction in Play Companion Extended Abstracts* (pp. 597-604).
5. Soosai Raj, A. G., **Zhang, E.**, Mukherjee, S., Williams, J., Halverson, R., & Patel, J. M. (2019, July). Effect of native language on student learning and classroom interaction in an operating systems course. In *Proceedings of the 2019 ACM Conference on Innovation and Technology in Computer Science Education* (pp. 499-505).
6. To, A., Holmes, J., Fath, **E., Zhang, E.**, Kaufman, G., & Hammer, J. (2018). Modeling and designing for key elements of curiosity: Risking failure, valuing questions. *Transactions of the Digital Games Research Association*, 4(2).
7. **Zhang, E.**, Culbertson, G., Shen, S., & Jung, M. (2018, April). Utilizing narrative grounding to design storytelling games for creative foreign language production. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* (pp. 1-11).
8. To, A., Fan, A., Kildunne, C., **Zhang, E.**, Kaufman, G., & Hammer, J. (2016, October). Treehouse Dreams: A Game-Based Method for Eliciting Interview Data from Children. In *Proceedings of the 2016 Annual Symposium on Computer-Human Interaction in Play Companion Extended Abstracts* (pp. 307-314).
9. To, A., Fath, **E., Zhang, E.**, Ali, S., Kildunne, C., Fan, A., ... & Kaufman, G. (2016). Tandem Transformational Game Design: A Game Design Process Case Study. In *Proceedings of the International Academic Conference on Meaningful Play*.

10. **Zhang, E** (2019) Designing Public Interactive Display in Children's Museum. Presented as a poster at the *Learning Sciences Graduate Student Conference (LSGSC) 2019*. Northwestern University, Evanston, IL, USA. (*Poster Presentation*)
11. **Zhang, E., Kumar, V.** (2019). Designing Collaborative Museum Games for Engaging Computational Thinking Practices. Presented as a poster at the *Learning Sciences Graduate Student Conference (LSGSC) 2019*. Northwestern University, Evanston, IL, USA. (*Poster Presentation*)