

Qianou Christina Ma

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Education

Carnegie Mellon University Human-Computer Interaction Institute (CMU HCII)

Pittsburgh, PA

PH.D. IN HUMAN-COMPUTER INTERACTION

Sept. 2022 - present

- **Advisors:** Dr. Ken Koedinger & Dr. Sherry (Tongshuang) Wu
- **Research Area:** LLM and CS Education. **Relevant Coursework:** Deep Learning; Advanced NLP

Carnegie Mellon University (CMU)

Pittsburgh, PA

B.S. IN COGNITIVE SCIENCE, B.S. IN COMPUTER SCIENCE, MINOR IN DESIGN FOR LEARNING (QPA: 3.91/4.0)

Sept. 2018 - May. 2022

- **Relevant Coursework:** CS Pedagogy; Human Learning Optimization; Personalized Online Learning; Design AI Product; Parallel Distributed Processing

Publications

Submitted (In Review)

- [R1] **Qianou Ma**, Hua Shen, Kenneth Koedinger, and Tongshuang Wu. **HypoCompass: Large-Language-Model-based Tutor for Hypothesis Construction in Debugging for Novices**. *arXiv preprint arXiv:2310.05292*, 2023.
- [R2] Aysa Xuemo Fan, Rully Agus Hendrawan, Yang Shi, and **Qianou Ma**. Enhancing code tracing question generation with refined prompts in Large Language Models.

Peer-reviewed Workshop, Posters & Work-in-Progress

- [W1] **Qianou Ma***, Yann Hicke*, Anmol Agarwal*, and Paul Denny. **ChaTA: Towards an Intelligent Question-Answer Teaching Assistant using Open-Source LLMs**. In *Proceedings of the Workshop on Generative AI for Education (GAIED) - co-located with 37th Conference on Neural Information Processing Systems (NeurIPS 2023)*, 2023. *equal contribution.
- [W2] **Qianou Ma**, Tongshuang Wu, and Kenneth Koedinger. **Is AI the better programming partner? Human-Human Pair Programming vs. Human-AI pAIr Programming**. In *Proceedings of the Workshop on Empowering Education with LLMs - the Next-Gen Interface and Content Generation 2023 co-located with 24th International Conference on Artificial Intelligence in Education (AIED 2023)*, pages 64–77, 2023.
- [W3] **Qianou Ma** and Erik Harpstead. Support designer-teacher collaboration in educational game design using learning science principles. In *Extended Abstracts of the 2021 Annual Symposium on Computer-Human Interaction in Play*, pages 117–121, 2021.
- [W4] **Qianou Ma** and Lauren Herckis. Work-in-progress: VR-enabled pedagogy in a first-year seminar. In *2021 7th International Conference of the Immersive Learning Research Network (iLRN)*, pages 1–3. IEEE, 2021.

Awards & Fellowships

HONORS & AWARDS

- 2023 **Generative AI Innovation Incubator (GAI3) Hackathon**, ChaTA: winning team of the Education track \$20,000
- 2021 **Phi Beta Kappa**, 1 of 16 seniors selected in Fall 2021 Pittsburgh, PA
- 2019 **Bravery. First Place, College Prose**, The 20th Annual Martin Luther King, Jr. Day Writing Awards Pittsburgh, PA

SCHOLARSHIP & FELLOWSHIPS

- 2021 **Support Designer-Teacher Collaboration in Educational Game Design Using Learning Science Principles**, CMU Dietrich College Senior Honors Fellowship \$6500
- 2021 **VR-Enabled Pedagogy in a First-Year Seminar**, Travel Award. Dietrich College Parents Fund \$250
- 2020 **The contribution of local and global language statistics to the development of structured semantic networks**, CMU Summer Undergraduate Research Fellowship \$3500
- 2020 **Improving Museums' Websites to Support Teachers & Parents: a Case Study of the Carnegie Museum of Art**, CMU Small Undergraduate Research Grant \$500
- 2019 **Patterns of linguistic input differentially predict relatedness in children's semantic structure**, Ireland Undergraduate Research Fund \$1750

Teaching Experience

2023 Fall	Teaching Assistant , 05-391/891 Design Human-Centered Software (60+ students)	<i>CMU, Pittsburgh, PA</i>
2021 Fall	Teaching Assistant , 15-110 Principles of Computing (300+ Undergraduate students)	<i>CMU, Pittsburgh, PA</i>
2021 Summer	Teaching Assistant , CS Scholar Pre-College Program (30+ Grades 9-12 students)	<i>CMU, Pittsburgh, PA</i>
2021 Spring	Teaching Assistant , 15-150 Functional Programming (300+ Undergraduate students)	<i>CMU, Pittsburgh, PA</i>
2019 Spring	Teaching Assistant , CMU LGC Gelfand Outreach (15+ Grades K-2 students)	<i>Pittsburgh, PA</i>
2019 Spring	Project Advisor , Project Ignite Machine Learning Team (5+ Grades 9-12 students)	<i>Pittsburgh, PA</i>
2019 Spring	Tutor , Assemble Girls' Maker Night After School Program (10+ Grades 5-8 students)	<i>Pittsburgh, PA</i>
2018 Fall	Tutor , Taylor Allderdice High School Writing Center (10+ Grades 9-10 students)	<i>Pittsburgh, PA</i>

Service & Leadership Experience

2022 - present	Reviewer , ACM CHI (2023, 2024), NeurIPS (2023)	
2023 - present	Member , CMU School of Computer Science CS Curriculum Review Committee (CRC) Serve as a committee member to help review the assessment of the CS curriculum at CMU SCS	<i>Pittsburgh, PA</i>
2019 - present	Member , CMU University Disciplinary Committee & Academic Review Board Serve as a board member to review student violations of community standards in hearings	<i>Pittsburgh, PA</i>
2023 Spring	Director , CMU School of Computer Science Graduate Student Musical Organize and direct a musical revue with 30+ performers and 200+ audience	<i>Pittsburgh, PA</i>
2022 Fall	Co-leader , CMU Women@SCS TechNights (data bias session) Help organize a session on training data and data bias card game for 20+ female middle-school students	<i>Pittsburgh, PA</i>
2021 Fall	Member , CMU Teaching Innovation Award Selection Committee Serve to review nominations of faculty members for the CMU teaching innovation award	<i>Pittsburgh, PA</i>
2018 - 2022	President (21-22), VP of Communications (20), Project Advisor (18-19) , CMU Project Ignite Collaborate with other organizations to recruit college students, provide free interdisciplinary project-based learning opportunities to local high-school students, and facilitate about 100 workshops per year	<i>Pittsburgh, PA</i>
2018 - present	Docent , Carnegie Museum of Art (CMOA) Serve as a volunteer docent to lead public tours and developed STEAM theme K-12 school tours at the museum	<i>Pittsburgh, PA</i>
2019	Member , CMU Initiating Meaningful Pittsburgh and Qatar Ties Host CMU Qatar students to foster cultural understandings between Pittsburgh and Qatar campuses	<i>Pittsburgh, PA</i>