

# Qianou (Christina) Ma

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## EDUCATION

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2018 - 2022     **Carnegie Mellon University (CMU), Pittsburgh, PA**  
B.S. in Cognitive Science, Minor in Computer Science & Design for Learning, QPA: 3.89/4.0  
*Relevant Coursework:* Principles of Child Development; Neural Correlates of Learning and Memory; Human Learning and Optimization; Educational Goal, Assessment, and Instruction; Introduction to Machine Learning; Design Educational Game

## SKILLS

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*Software:* Adobe (AE/PR/PS/AU); Audacity; Figma; SPSS; ELAN; Microsoft Office (Excel/Powerpoint/Word)  
*Programming:* [Intermediate]: Python, C, SML, R, LaTeX, Git; [Basic]: JavaScript/HTML/CSS, Jekyll, jspsych  
*Natural Language:* Mandarin (Native); English (Fluent)

## RESEARCH EXPERIENCE

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Feb. 2021 - present     **Principal Investigator, Educational Game Design Support Study**, CMU, Pittsburgh, PA  
Advisors: Dr. Erik Harpstead & Dr. Sharon Carver

- Design a quasi-experiment case study to investigate how the forms and presentation of learning science principles influence designer-teacher collaboration in educational game design
- Create game development workshop protocols, design support tools, and evaluation rubrics

Jan. 2021 - present     **Principal Investigator, VR-Enabled Pedagogies Case Study**, CMU, Pittsburgh, PA  
Advisor: Dr. Lauren Herckis

- Collect and analyze student learning and perception of VR data using descriptive coding
- Conducted literature review on VR pedagogies, implemented a case study on the integration of VR technologies into an interdisciplinary first-year seminar, *Unreality: Immersive and Spatial Media*
- Submitted a work-in-progress paper and presented at the iLRN 2021 International Conference

Sept. 2020 - Dec. 2020     **Research Assistant, Cognitive Linguistics Lab**, CMU, Pittsburgh, PA  
Advisor: Dr. Bonnie Nozari

- Selected stimulus set and designed a counterbalanced experiment with PMI & log-likelihood scores to explore associative & taxonomic semantic relation's distinct influence on language production
- Implemented a picture-naming typing online experiment using jspsych, psiTurk, and MTurk

Dec. 2019 - Feb. 2020     **Research Assistant, Multimodal Analytics with Math Learning**, CMU, Pittsburgh, PA  
Advisor: Dr. Lujie (Karen) Chen

- Helped specify coding scheme of math tutoring, help-seeking, and problem-solving dynamics
- Annotated multimodal data of math tutoring video clips using ELAN and R

Sept. 2019 - May 2020     **Principal Investigator, Carnegie Museum of Art Website Study**, CMU, Pittsburgh, PA  
Advisor: Dr. Sharon Carver

- Conducted a case study to improve information design of art museums' websites for educators
- Designed website rubrics; conducted a comparative analysis, a survey, and a card sorting user study

Feb. 2019 - Aug. 2020     **Research Assistant & PI, Cognitive Development Lab**, CMU, Pittsburgh, PA  
Advisors: Dr. Anna Fisher & Dr. Catarina Vales

- Investigated word relations' influence on children's semantic acquisition; cleaned data, calculated, and analyzed statistical measures (GloVe, LSA, PMI) from corpus (e.g., Childes, Common Crawl)
- Presented progress reports and findings at lab meetings and undergraduate research symposium
- Assisted lab tasks including PPVT coding & SpAM tasks data collection with 3- to 5-year-olds

## PRESENTATIONS

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- Ma, Q.** and Herckis, L. (2021). Work-in-Progress Paper: VR-Enabled Pedagogy in a First-Year Seminar. *Presentation at iLRN 2021 7th International Conference of the Immersive Learning Research Network.*
- Ma, Q.,** Vales, C., & Fisher, A. (2021). The contribution of taxonomic and associative language statistics to the development of structured semantic networks. *Presentation at Carnegie Mellon University's Meeting of the Minds Undergraduate Research Symposium, Pittsburgh, PA.*

## GRANTS, AWARDS & FELLOWSHIPS

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

## TEACHING EXPERIENCE

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- 2021 Fall **Teaching Assistant, Principles of Computing** (Undergrads), CMU, Pittsburgh, PA
- 2021 Spring **Teaching Assistant, Functional Programming** (Undergrads), CMU, Pittsburgh, PA
- 2019 Spring **Teaching Assistant, Gelfand Outreach** (Grades K-2), CMU LGC, Pittsburgh, PA
- 2019 Spring **Advisor, Machine Learning Project** (Grades 9-12), CMU Project Ignite, Pittsburgh, PA
- 2019 Spring **Tutor, Girls' Maker Night After School Program** (Grades 5-8), Assemble, Pittsburgh, PA
- 2018 Fall **Tutor, Writing Center** (Grades 9-10), Taylor Allderdice High School, Pittsburgh, PA
- 2018 Summer **Tutor, SAT Reading** (Grades 9-11), Peer Insight Education, Beijing, China
- 2018 Summer **Teaching Assistant, TOEFL R/L/S/W** (Grades 9-11), Sanli, Shanghai, China

## LEADERSHIP & SERVICE EXPERIENCE

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- 2018 - present **President, CMU Project Ignite**, Pittsburgh, PA
- Serve as the President (2021, 2022), VP of Communications (2020), Project Advisor (2019)
  - Collaborate with other organizations to recruit college students, provide interdisciplinary project-based learning opportunities to local high-schoolers, and facilitate weekly workshops in springs.
- 2018 - present **Docent, Carnegie Museum of Art (CMOA)**, Pittsburgh, PA
- Serve as a volunteer docent to talk with public visitors about artworks and offer K-12 school tours
- 2019 - present **Member, CMU Univ. Disciplinary Committee & Acad. Review Board**, Pittsburgh, PA
- Serve as a board member to review student violations of community standards in hearings
- 2019 **Member, CMU Initiating Meaningful Pittsburgh and Qatar Ties**, Pittsburgh, PA
- Served as a member to help bridge cultural understandings between CMU Pittsburgh and Qatar campuses and hosted CMU-Qatar students