

Xingjian (Lance) Gu

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Research interests

AI Literacy, Computer Science Education, Education Equity and Justice

Education

- 2022 – Present **University of Michigan School of Information** – Ann Arbor, MI
PhD in Information Science
- 2020 – 2021 **Harvard Graduate School of Education** – Cambridge, MA
Ed. M. in Technology, Innovation, and Education
- 2016 – 2020 **Brown University** – Providence, RI
B. A. in Computer Science, B. A. in Education Studies
Magna Cum Laude.

Honors and scholarships

- 2024, 2023 School of Information Doctoral Travel Award (University of Michigan)
- 2020 Phi Beta Kappa (Brown University)

Publications

- 2026 **A Multi-Institutional Study on Peer Instruction: Evaluating Text-Chat with Assigned Group Members vs Verbal Discussion**
Gu, X., Ericson, B., Wu, Z., Ellis, M., Pearce, J., Rodger, S., Velasco, Y.
Proceedings of the 57th ACM Technical Symposium on Computer Science Education V. 1
(pp. 428-434).
- 2026 **Overcoming Barriers to Adopting Peer Instruction**
Gu, X., Tariq, M., Wu, Z., Ericson, B.
Proceedings of the 57th ACM Technical Symposium on Computer Science Education V. 1
(pp. 435-441).

- 2025 **AI Literacy in K-12 and Higher Education in the Wake of Generative AI: An Integrative Review**
Gu, X., Ericson, B.
Proceedings of the 2025 ACM Conference on International Computing Education Research V.1 (pp. 125-140).
- 2025 **The Intersectional Experience of Black Girl High School Students in Advanced Placement Computer Science**
Gu, X., Ericson, B.
Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1 (pp. 304-310).
- 2025 **Can a Free Tool in an Ebook Platform, Searchable Question Bank, and Summer Workshop Help Instructors Adopt Peer Instruction?**
Ericson, B., Gu, X., Wu, Z., Patel, S., Padiyath, A.
Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1 (pp. 304-310).
- 2024 **Insights from Social Shaping Theory: The Appropriation of Large Language Models in an Undergraduate Programming Course.**
Padiyath, A., Hou, X., Pang, A., Viramontes Vargas, D., Gu, X., Nelson-Fromm, T., Wu, Z., Guzdial, M., Ericson, B.
Proceedings of the 2024 ACM Conference on International Computing Education Research-Volume 1 (pp. 114-130).
- 2023 **Peer+: A Tool to Support Peer Instruction in Interactive Ebooks**
Ericson, B. J., Gu, X., Patel, S., Padiyath, A.
In Proceedings of the 2023 ACM Conference on International Computing Education Research-Volume 2 (pp. 48-49).
- 2023 **Exploring Physicality in Out-of-School Time Learning.**
Lee, L., Jones, D., Cederquist, S., Gu, X., Fishman, B., Herrenkohl, L.
In Proceedings of the 17th International Conference of the Learning Sciences-ICLS 2023 (pp. 1839-1840).
- 2023 **Documenting Out-of-School Time Learning: Opportunities, Tensions, and a Prototype.**
Fishman, B., Rupert Herrenkohl, L., Pinkard, N., Headrick Taylor, K., Cardella, L., Cederquist, S., Gu, X., Jones, D., Lee, J., Lee, L., Majors, Y., Samuelson, A.
In Proceedings of the 17th International Conference of the Learning Sciences-ICLS 2023 (pp. 1793-1794).

- 2023 **Out-of-School Time: Divergent Learning, Divergent Opportunities.**
Fishman, B., Rupert Herrenkohl, L., Pinkard, N., Headrick Taylor, K., Cederquist, S.,
Gu, X., Jones, D., Lee, J., Lee, L., Reid, C., Penuel, W., Peppler, K.
In Proceedings of the 17th International Conference of the Learning Sciences-ICLS 2023
(pp. 1585-1592).
- 2023 **Supporting Instructors Adoption of Peer Instruction**
Gu, X., Ericson, B. J., Wu, Z.
In Proceedings of the 55th ACM Technical Symposium on Computer Science Education
V. 2 (pp. 1662-1663).
- 2020 **Using Design Alternatives to Learn About Data Organizations.**
Gu, X., Heller, M. A., Li, S., Ren, Y., Fisler, K., Krishnamurthi, S.
*In Proceedings of the 2020 ACM Conference on International Computing Education Re-
search* (pp. 248-258).

Talks

- February 2026 A Multi-Institutional Study on Peer Instruction: Evaluating Text-Chat with Assigned
Group Members vs Verbal Discussion
2026 ACM Technical Symposium on Computer Science Education '26
- February 2026 Overcoming Barriers to Adopting Peer Instruction
2025 ACM Technical Symposium on Computer Science Education '26
- March 2025 The Intersectional Experience of Black Girl High School Students in Advanced Place-
ment Computer Science
2025 ACM Technical Symposium on Computer Science Education '25
- March 2025 Can a Free Tool in an Ebook Platform, Searchable Question Bank, and Summer Work-
shop Help Instructors Adopt Peer Instruction?
2025 ACM Technical Symposium on Computer Science Education '25
- March 2024 Supporting Instructors Adoption of Peer Instruction
2024 ACM Technical Symposium on Computer Science Education '24
- August 2023 Peer+: A Tool to Support Peer Instruction in Interactive Ebooks
2023 ACM Conference on International Computing Education Research '23

Research experience

- 2023 – Present **Learning Media Lab, University of Michigan**
Advisor: Dr. Ying Xu (PI)
Teacher-AI Collaboration: Investigated how to best support STEM teachers to prepare lessons with LLM-based tools. Interviewed teachers about lesson planning process and user tested tool prototypes.
- 2022 – Present **University of Michigan School of Information**
Advisors: Dr. Barbara Ericson, Dr. Barry Fishman
Tool-Supported Peer Instruction: Evaluated the learning outcomes of tool-supported Peer Instruction compared to traditional approaches. Researched whether providing open-source free tool can help instructors adopt Peer Instruction.
Computer Science Education Equity: Researched Advanced Placement Computer Science learning experiences of high school students who are traditionally underrepresented in Computer Science.
Out-of-School-Time STEAM Learning Records: Researched the needs of different stakeholders, including students, parents, educators, and college admissions officers, in recording high school students' out-of-school STEAM learning.
- 2021 **Teaching and Learning Lab Practicum, Harvard University**
Advisor: Dr. Karen Brennan (PI)
Designed workflow that facilitates the integration of learning tools in HGSE courses. Designed decision matrices to weigh between different factors when choosing learning tools. Both are now adopted by the lab for use.
Using the designed decision matrices, tested and evaluated learning tools based on their accessibility, security, and impact on teaching and learning. Negotiated with vendors about review copies.
- 2019 – 2020 **Programming Languages Team, Brown University**
Advisor: Dr. Shriram Krishnamurthi (PI)
Studied how programming language design can facilitate students' understanding of data organizations.
Collected and cleaned lab activity data from 57 students using Pandas. Designed and applied coding schemes to quantify students' textual responses and reflections.
Analyzed the responses to assess students' learning and evaluate the learning design. Revised manuscripts and provided feedback on potential improvements to the course. Work published in SIGCSE International Computing Education Research Conference.

2018 **Brown University**

Advisors: Dr. Jin Li (PI), Dr. Yoko Yamamoto

Studied early childhood learning beliefs of immigrant families and their long-term effects on developmental outcomes.

Cleaned, digitized and validated physical copies of interview surveys and audio recordings using EpiData. Qualitatively analyzed interviews of parents and kindergarten children.

2018 **East China Normal University**

Advisor: Dr. Jing Zhou (PI)

Studied how early childhood language acquisition, measured by the fluency and complexity of self-expression, is influenced by their families' socioeconomic status.

Transcribed and processed linguistic corpus data from 11 kindergarten children to analyze their rate of language acquisition.

Teaching experience

University of Michigan School of Information

Winter 2026, **SI 622: Needs Assessment and Usability Evaluation**

Winter 2025 Graduate Student Instructor

A team-based, project-based course on UX research methodologies. Led weekly 2-hour discussion sections to support students conducting usability tests for external clients. Created discussion section lecture and learning activities. Revised assignments.

Enrollment: 80-90 students.

Fall 2025 **SI 506: Programming I**

Graduate Student Instructor

Required introductory Python course with a focus on data manipulation. Substituted for a lecture. Revised and updated assignments and exams.

Enrollment: 150 students.

Industry experience

2021 – 2022

Thinktown America Inc.

Learning Designer and Instructor: Developed computer science courses on machine learning basics. Tutored 8th grade to 12th grade students with fundamental computer science concepts and programming basics in Java and Python.

Counselor: Advised high school students through college application. Facilitated students to reflect upon their lived experiences and passions in preparation for presenting personal statements.

Standard Operating Procedure Specialist: Evaluated and integrated digital tools to the branch office. Collected user experience feedback on in-house learning management systems and presented them to the IT team.

2021

WeLight Education

Teacher: Developed and taught math courses for students from 1st to 7th grade.

Adapted the Creative Computing Curriculum developed by Dr. Karen Brennan, taught Scratch programming to elementary school learners with a constructionist approach.

Community services

2024 – Present

Peer review

SIGCSE TS, CHI, IDC

2023 – Present

Volunteer

SIGCSE TS, LAK, ISLS

Technical skills

Research

Quantitative analysis, coding scheme design, study design, data collection, cleaning, and processing, qualitative methods, scientific writing, strong communication skills

Learning design

Backward design, SAMR model, TPACK model, ADDIE model, logic model, principled negotiation, human-centered design, prototyping, learning analytics, multi-modal data collection, teaching s

Programming

Python (NumPy, Scikit-Learn, Pandas), C, C++, Java, HTML, JavaScript, CSS, Racket, SQLite

Tools

Unity, Canvas, LTI, Tableau, RapidMiner, xAPI, Figma, Stata, LaTeX, Adobe XD, Scratch, Microsoft Office

Language Proficiency

English (Bilingual), Mandarin Chinese (Bilingual), German (B1)

Other interests

Board Game, Saxophone, Scuba Diving