Hongxuan Chen

hc10@illinois.edu (+1) 217-550-1123

Education

University of Illinois at Urbana-Champaign

Doctor of Philosophy in Computer Science — Fall 2021 - Present
- Research Area: Computer Science and Education
- Advised by Dr. Geoffrey Herman
- Passed qualifying exam in Spring 2023
- Expected to graduate in May 2027

Bachelor of Science in Computer Science — Graduated in May 2021
- GPA: 4.0 — with Highest Honors

Research Interests

My research interests span a variety of topics in CS Education, including how students learn discrete mathematics and algorithm designs, collaborative learning in CS classrooms, and evaluation of curriculum and policies.

Peer-reviewed Conference Papers

Chen, H., Li, A., Challen, G., & Cunningham, K., (2024). Implementation of Split Deadlines in a Large CS1 Course. *Proceedings of the 2024 ACM Technical Symposium on Computer Science Education (SIGCSE TS)*, Portland, OR, USA.

Poulsen. S., Gertner, Y., **Chen, H.**, Cosman, B., West, M., & Herman, G.L. (2024). Disentangling the Learning Gains from Reading a Book Chapter and Completing Proof Blocks Problems. *Proceedings of the 2024 ACM Technical Symposium on Computer Science Education (SIGCSE TS)*, Portland, OR, USA.

Chen, H., Fong, M.M., Herman, G.L., & Silva, M. (2023). Student Autonomy in Collaborative Learning: Effects of Meeting Time and Team Consistency. *Proceedings of the 2023 IEEE Frontiers in Education Conference (FIE)*, College Station, TX, USA.

Chen, H., West, M., Hilgenfeldt, S., & Silva, M. (2023). Measuring the Impact of a Computational Linear Algebra Course on Students' Exam Performance in a Subsequent Numerical Methods Course. *Proceedings of the 2023 ACM Technical Symposium on Computer Science Education (SIGCSE TS)*, Toronto, Canada.

Fong, M.M., Butler, L., **Chen, H**., & Herman, G.L. (2022). Validating an Observation Protocol for Structured Roles in Cooperative Learning. *Proceedings of the 2022 IEEE Frontiers in Education Conference (FIE)*, Uppsala, Sweden.

Fong, M.M., **Chen, H.**, Butler, L., & Herman, G.L. (2022). Developing an Observation Protocol for Cooperative Learning. *Proceedings of the 2022 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Minneapolis, MN, USA.

Mahmood, M.S., **Chen, H.**, Fong, M.M., & Herman, G.L. (2022). Work in Progress: Exploring Students' Misconceptions of Cache Memories. *Proceedings of the 2022 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Minneapolis, MN, USA.

Research Experience

University of Illinois Urbana-Champaign

Barriers to Mastery in the Design of Graph Algorithms — Fall 2023 - Present

- Designed and conducted individual interviews with students in an algorithms course and performed qualitative analysis tasks to investigate conceptual barriers that hinder students from mastering designing graph algorithms

Auto-graded Study Resources in an Algorithms Course — Spring 2024 - Present

- Assisted qualitative analysis on survey responses collected from students in order to understand how students perceived and took advantage of automatically graded resources in an algorithms course

How Students Conceptualize Solving SQL Questions — Spring 2024 - Present

- Designed and conducted individual interviews with students in an algorithms course and performed qualitative analysis tasks to investigate conceptual barriers that hinder students from mastering designing graph algorithms

Course Policy Evaluation for an Introductory CS Course — Summer 2023

- Conducted qualitative and quantitative analyses to understand how a "split deadline" policy affects students' performance, office hours efficiency, and perceived fairness

Collaborative Learning in CS Classrooms — Fall 2022 - Spring 2023

- Designed and performed data analysis tasks to understand differences in students' learning outcome and experience based on different learning modes
- Observed students' cooperative problem-solving process synchronously during lectures for various CS courses
- Coded and analyzed students' activities from screen and audio recordings for further quantitative analysis

Using Proof Blocks to Assist Learning of Proof Writing — Fall 2022 - Spring 2023

- Contributed to qualitative data coding of students' written proof by induction and assisted with data analysis

Linear Algebra Prerequisite and Subsequent Numerical Methods Course — Spring - Summer 2022

- Designed and executed data analysis tasks to understand traditional and computation linear algebra courses' impacts on students in a subsequent numerical methods course

Students' Metacognition and Reasoning Skills in Cache Analysis Problems — Summer 2021 - Fall 2022

- Qualitatively extracted and summarized students' problem-solving methods and strategies for cache analysis problems from interviews with student participants

Students' Cognition in Computing Contexts With Eye Tracking — Spring 2018

- Coordinated and scheduled interviews with participants for the research team
- Conducted and coded interviews with participants using eye-tracking equipment

Teaching Experience

Instructor (Co-teaching) — Spring 2024

Department of Computer Science, University of Illinois Urbana-Champaign

CS233: Computer Architectures

- Teach lectures and lead flipped classroom collaborative learning sessions every class
- Manage every aspect of a course with about 280 students and 35 staff members

Graduate Teaching Assistant (Various Courses) Fall 2021, Summer 2022
Department of Computer Science, University of Illinois Urbana-Champaign
CS233: Computer Architectures, CS173: Discrete Structures
- Led weekly in-person discussion sessions
- Graded exams, proctored online exams, held office hours, maintained online course forum
- Authored supplementary reading materials for the course
- Clarified confusions and helped students understand course contents by answering students' questions in lectures, holding office hours, and hosting review sessions

Undergraduate Course Assistant (Various Courses) Spring 2018 - Spring 2021
Department of Computer Science, University of Illinois Urbana-Champaign
CS125: Introduction to Computer Science, CS233: Computer Architectures,
CS374: Introduction to Algorithms and Models of Computation
- Conducted quality assurance testing for newly developed course materials
- Guided and supported students by answering questions during lectures, holding discussion sessions, lab sessions, review sessions, and office hours
- Graded homework assignments for a theory course, providing helpful feedback and explanations for clarification

Services

Reviewer
2025 ACM Technical Symposium on Computer Science Education (SIGCSE TS)

2023 ACM Technical Symposium on Computer Science Education (SIGCSE TS)

Student Volunteer
2024 ACM Technical Symposium on Computer Science Education (SIGCSE TS)

Teaching Assistant Summer 2020
Girls Who Code, Remote
- Assisted instructors during synchronous online lectures, grading and office hours
- Organized advisory panels for socializing and establishing sisterhood and encourage high school female students to participate in CS

Honors and Awards

Teacher Ranked as Excellent Summer 2022
Department of Computer Science, University of Illinois Urbana-Champaign

Outstanding Course Assistant Spring 2021
Department of Computer Science, University of Illinois Urbana-Champaign
- Selective department-wise recognition with 5 recipients only

Bronze Tablet Honoree Spring 2021
University of Illinois Urbana-Champaign
- Highest honor for graduation awarded for top 3% students

Illinois Engineering Achievement Scholarship: $1,000 Spring 2021
Grainger College of Engineering, University of Illinois Urbana-Champaign

Professional Experience

Data Scientist Intern Summer 2019

Double Dragon Big Data, Guiyang, Guizhou, China

- Built scrapers to crawl web pages from Baidu Baike and managed data with SQL database
- Designed algorithms for data cleaning and determining latent network and relationships of thousands of words and phrases

Technical Skills

Programming

- App Development with React Native (TypeScript, JavaScript)
- Web Development (HTML/CSS/JavaScript, React)
- Database Management (SQL, MongoDB, Neo4j)
- Data Analysis (Python, R)
- Java, Python, C, JavaScript, TypeScript

Languages

Chinese (Mandarin): Native language

English: Fluent (117/120 on TOEFL iBT Test, July 2020)