

Haoyi Wang

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Education

University of Pennsylvania, School of Engineering and Applied Science	Present
Master's, Computer and Information Technology	
Harvard University, Graduate School of Education	2022
Ed.M, Human Development and Education, <i>GPA 4.0/4.0</i>	
Carleton College	2019
BA, Mathematics (Major) & Music Performance (Minor), <i>Cum Laude & Honors</i>	
Off-campus programs:	
Budapest Semesters in Mathematics Education, Budapest, Hungary (Fall 2019)	
Doshisha University Exchange Program, Kyoto, Japan (Spring 2018)	

Publications & Presentations

- Wang, H.** (2024, July 7-14). *U.S. eighth-grade students' mathematics reasoning and attitude towards mathematics: Analysis of TIMSS 2011, 2015, and 2019* [Conference presentation poster]. TSG 3.6, the 15th International Congress on Mathematical Education.
- Wang, H., & Star, J. R.** (2023). Investigating algorithm-oriented flexibility and structure-informed flexibility in mathematics learning. *Asian Journal for Mathematics Education*. DOI:10.1177/27527263231163593
- Wang, H.** (2023, July 15-16). *Classroom interactions in Hungarian guided discovery math camps* [Conference presentation paper]. 2023 Cambridge China Education Forum, the University of Cambridge.
- Gao, X., Gao, H., Liu, S., Wang, Q., **Wang, H.**, Liu, W., & Qu, Z. (2023, July 14). *The current situation, causes and countermeasures of the digital divide among urban elderly* [Conference presentation]. 2023 "Frontiers of Educational Technology" Summer School, Peking University.
- Wang, H., & Chi, C.** (2022, April 21-23). *Investigating the numerical cognitive development of rural Chinese preschoolers living in poverty* [Conference presentation poster]. 2022 Cognitive Development Society Biennial Conference.
- Uscianowski, C. and **Wang, H.** (2022, April 1-2). *Use of Math Storybooks and Oral Storytelling to Improve the Numeracy and Storytelling Skills of Students with Learning Disabilities* [Conference presentation paper]. Learning through Play and Imagination: Expanding Perspectives, Special Topic Meeting, Society for Research in Child Development.
- Wang, H.** (2021, September 11-15). *Educational Game Report: Milk-Tea Shops and Linear Programming* [Conference presentation paper]. *The 25th Global Chinese Conference on Computers in Education*, the Education University of Hong Kong.
- Wang, H.** (2021, July 12-19). *A reflective practice on an online Mathematics class* [Conference presentation paper]. TSG 49, the 14th International Congress on Mathematical Education.
- Wang, H.** (2021). What works and what does not: a reflective practice on an online mathematics class. *Mathematics Teaching Research Journal, City University of New York*, 13:1, 16-30. DOI: 10.7916/d8-0q2a-7f14
- Matzal, C., Manahan, K., Galaty, B., **Wang, H.**, & Barbarics, M. (2020). Guided discovery in Hungarian education using problem threads: the Pósa method in secondary mathematics classrooms. *Teaching Mathematics and Computer Science Journal, University of Debrecen, Hungary*. DOI:10.5485/TMCS.2020.0491

Research Experience

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| Research Assistant , The Rowe Lab, Harvard University | 2021 June - 2022 March |
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- Transcribed, coded and analyzed naturalistic video data from 80 parent-child dyads using CLAN software as part of the Early Math Project, under the supervision of Dr. Meredith Rowe.

- Investigated the role of parent-child interaction in early mathematical development and the effects of different types of parental scaffolding on children's math skills.

Research Assistant, Harvard Center for Education Policy Research 2021 September - 2022 June

- Built survey forms in Qualtrics and transcribed recordings for the Math Teacher Rehearsals project, which aimed to improve the quality of math instruction and student learning outcomes by providing teachers with feedback and coaching on their lesson plans and delivery.
- Transcribed and cleaned datasets for the Mathematical Knowledge for Teaching Measures, which developed and validated new assessments of teachers' mathematical knowledge and pedagogical content knowledge.

Research Assistant, Child Learning Lab, University of Cincinnati 2021 May - 2022 August

- Conducted systematic literature reviews on the effects of math storybook interventions on preschool children's math skills and attitudes, using databases such as ERIC, PsycINFO, and Web of Science, and keywords such as math, storybook, intervention, preschool, etc.
- Coded video data from 44 children who participated in the Math Story Time project, which evaluated the impact of reading math-related storybooks on children's math learning and enjoyment, supervised by Dr. Colleen Uscianowski.

Research Group Leader, Illinois Geometry Lab 2020 September - 2021 May

- Led a team of four undergraduate students in developing and delivering e-learning lesson plans on Symmetry Groups and Fractals for 60 local students in Grade 4 through Grade 6.
- Created interactive and engaging activities and exercises using online tools such as GeoGebra and Desmos to help students explore and understand geometric concepts and patterns.

Researcher, Budapest Semesters in Mathematics Education 2019 September - December

- Investigated the designing and implementing aspects of problem threads in the Pósa Method, which is a student-centered approach to teaching mathematics that fosters inquiry, creativity, and collaboration.
- Collected and analyzed various data from literature review, interviews with teachers and students, observations of classroom sessions, and questionnaires on students' attitudes and perceptions.
- Found that problem threads can enhance students' mathematical thinking and problem-solving skills, as well as their motivation and interest in mathematics.

Professional Experience

Mentor, Student-Alumni Mentoring Initiative, Harvard University 2023 June - Present

- Guide and support two students in their personal and professional development, as well as career and network building, through a nine-month mentorship program.
- Advise them on academic matters such as course selection, study skills, and research opportunities.
- Help them explore and pursue their career interests and goals by providing feedback on their CVs, cover letters, and interview skills, and connecting them with relevant resources and contacts.
- Meet with them monthly for one hour each to discuss their progress and challenges, and offer encouragement and guidance.

Section Leader, Code in Place, Stanford University 2023 April - June

- Taught Python fundamentals over the span of five weeks to 15 students from diverse backgrounds and skill levels through weekly hour-long sessions.
- Facilitated interactive and collaborative learning by using online platform Zoom.
- Assessed students' understanding and progress by assigning and grading weekly assignments and quizzes, and providing individualized feedback and support.
- Received high ratings and positive comments from students on their learning experience and satisfaction.

Senior Research Assistant, Hong Kong Baptist University 2023 January - March

- Co-designed an online experiment on the topic of fake news, which examined how different sources, formats, and contents of news affect people's perception and trust of information.
- Assisted with intervention materials writing, which involved creating and editing fake and real news articles and presentation slides on various topics such as politics, health, and entertainment.

Graduate Instructor, University of Illinois at Urbana-Champaign 2020 August - 2021 May

- Taught four sections of MATH124 Finite Mathematics online to 120 students through Zoom, which covered topics such as logic, sets, probability, matrices, linear programming, etc.
- Designed and developed weekly exams and homework problem sets on Moodle, which assessed students' understanding and application of the course concepts and skills.
- Provided timely and constructive feedback and support to students through email, office hours, and discussion forums.
- Achieved high scores and positive reviews from students on their course evaluation and satisfaction.

Academic Associate, Harvard College U.S.-China Relations Association 2020 June-2021 March

- Led seven data science projects and mentored over 20 students at China Thinks Big, which involved guiding them through the process of data collection, analysis, visualization, and presentation on topics such as air pollution, social media, and education.
- Assisted with course delivery at Harvard Summit for Young Leaders, which included teaching a module on data science and its applications, facilitating group discussions and activities, and providing feedback and evaluation to the students.

Teaching Assistant, Carleton College 2017 September - 2019 June

- Tutored Probability one-on-one in the Math Skills Center, which helped students improve their understanding and performance in the course.
- Graded weekly problem sets for a total of over 180 students in 6 Calculus and Linear Algebra courses, which involved applying consistent and accurate marking criteria and providing constructive feedback.
- Received positive feedback from the students and the instructors on my reliability, professionalism, and quality of work.

Academic Counselor, Ross Mathematics Program, Ohio State University 2018 June - August

- Mentored 8 high school students who participated in the Ross Mathematics Program, which is a six-week intensive summer program that exposes students to advanced topics in mathematics such as number theory, abstract algebra, and topology.
- Graded their daily problem sets and provided individualized feedback and support to help them develop their mathematical thinking and problem-solving skills.
- Organized bi-weekly study group events and conducted weekly office hours to foster a collaborative and supportive learning environment.
- Received high ratings and positive comments from the students on their learning experience and satisfaction.

Skills

Certificates: Google Advanced Data Analytics Certificate, Graduate Teacher Certificate (UIUC), ICT for International Learning (British Council), The Teacher as Researcher (British Council), CITI IRB training

Technology: Python, Java, SPSS, R, LaTeX, NVivo, CLAN, MS Office

Language: Chinese, English

Awards and Honors

China-Harvard Fellowship	2021 - 2022
The Konhauser Problemfest Math Group Contest, First Place & Third Place	2018 & 2019
MAA-North Central Section Team Math Competition, Top Ten	2017 & 2018
New York Chinese Instruments International Competition, Gold Medal	2017