XUAN LIU

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Research Interests

Artificial Intelligence in Education · Human-AI Interaction · Educational Measurement and Assessment
Computational Models of Learning · Curiosity and Interest Development · Learner Agency and Educational Equity

Education

University of Pennsylvania Philadelphia, PA, 2025–2027 (expected)
M.S.Ed., Statistics, Measurement, Assessment & Research Technology. GPA: 3.72/4.00.

Wuhan University Wuhan, China, 2021–2025
B.A., Chinese Language and Literature. GPA: 3.91/4.00. Advisors: Shudong Wang and Xi Chen
Undergraduate thesis: "Language Paradox and the Exploration of Boundaries in Szymborska's Poetry: New Ecocritical Questions from the Perspective of Chinese Xing-Ming (School of Names) Studies."

Université Paris Cité Paris, France, 2023–2024
Erasmus+ Exchange Student, course "Representing Masculinity in the Long Eighteenth Century" Instructor: Clara Manco

Harvard University Cambridge, MA, Summer 2023
Harvard Summer School course "Resilient Communities from the Ground Up." Instructor: Alison Sant

Research Experience

SPAR (Supervised Program for Alignment Research) 2026–present
AI Safety Research Mentee, Education Track *Mentor: William Overman, Stanford Graduate School of Business*
- Independently proposed framing AI tutoring as a partially observable decision problem, emphasizing learner-state uncertainty and evidence-seeking before intervention; co-developed a taxonomy of 14 tutoring-agent failure modes spanning over- and under-intervention.
- Designed and tested a Python-based block-coding maze environment for AI-to-teacher oversight. A REINFORCE policy outperformed tested fixed baselines while requesting teacher assistance at 17% of decision points, highlighting the limitations of simulated learner assumptions.
- Collaborated on developing and training a step-level ASK/PLAY mathematics tutoring environment using MATH and PRM800K problems; investigated how reward optimization can favor task completion over independent student learning.
- Curated 200 mathematics problems comprising 1,152 solution steps from PRM800K and designed a teacher-labeling protocol to evaluate step importance and appropriate AI assistance, preparing for future comparisons between computational labels and educators' judgments.

Wharton AI for Society Research Lab, University of Pennsylvania 2026–present
Research Assistant, School Partnership Program *Initiative led by Eric T. Bradlow, Vice Dean of AI & Analytics*
- Co-developed teacher-facing Gemini and NotebookLM materials with West Deptford High School (NJ); tested custom Gemini Gems for reliability; contributed to 70 Gemini demos and a teacher Verification Playbook; currently producing on-demand teacher-training videos (launching spring 2027).
- Quoted in Wharton AI & Analytics Initiative news coverage of the Lab, "From AI Experimentation to Classroom Impact" (October 2026).
- Synthesized educator feedback that redirected the program from pre-built AI assistants toward educator-led customization.

Penn AI Pedagogy Initiative, AI & Education Lab, University of Pennsylvania 2025–2026
Lead Research Assistant *Supervisors: Seiji Isotani and Sharon Ravitch*
- Led 3 research assistants within the initiative's eight-RA team integrating generative AI into university courses (funded by Penn AI "Discovering the Future of AI" and GSE Dean's Strategic Priority grants); served as primary liaison between the RA team and faculty supervisors.
- Developed six-plus iterations of a classroom AI-use observation instrument, piloted in two Penn courses; conducted program evaluation using classroom observation and qualitative coding.
- Contributed to the AI Fear Index project: program evaluation, classroom observation, qualitative coding, and learner-data analysis.

China Institute for Educational Finance Research, Peking University 2024
Field Interviewer and Technical Support Team Member *PI: Xinjie Zhang*
- Conducted phone interviews with 30+ parents and organized survey data for the Randomized Intervention Study on Rural Family–School Collaboration (Yunnan Province, China), a randomized field experiment involving 3,750 households across 201 villages in Yun County. The research team's findings were later presented at SREE 2025 and AERA 2026.
- Supported two interviewer teams by uploading nearly 100 call recordings for quality checks, maintaining a real-time tracker of technical issues for the second intervention round, building online forms to collect interviewer data, and troubleshooting calling-platform issues, including blocked numbers and a number-hopping problem.

School of Law, Wuhan University 2024
Research Team Member, Specialized Education System for Juvenile Offenders *Supervisor: Xiaoqin Ye*
– Conducted field investigations at four specialized schools in Hubei Province; interviewed public security, prosecutorial, and judicial authorities; synthesized empirical evidence for K-12 policy recommendations.

School of Chinese Language and Literature, Wuhan University 2024
Research Assistant, Linguistic Landscape Study *Supervisor: Yewei Qin*
– Collected and coded 443 linguistic-landscape samples (87 official, 356 non-official) in Hua'anli, Wuhan's largest urban village; applied discourse analysis to how everyday signage encodes social power among marginalized urban populations.

Publications and Manuscripts

– Y. Dong, **X. Liu**, & Y. Qin (2024). **Social Power Structures and Cultural Identity in Linguistic Landscapes: A Case Study of Hua'anli Community in Wuhan.** *Zhongguo Yuqing* (China Language Review), Issue 57.
– **X. Liu**, S. Heo, & J. C. K. Liew (2026). **Generative AI and Adolescents: A Scoping Review of Developmental, Educational, and Ethical Implications.** Manuscript in preparation (PRISMA-ScR; 608 records screened; 82 studies from 27 countries included).
– Y. Cao, B. Chrepta, A. Goel, E. Hong, **X. Liu**, S. Motghare, & W. Overman (2026). **Learning When to Ask: Environments for Human Oversight.** Working paper (SPAR Fall 2026 midterm report).
– J. Wang, **X. Liu**, Q. Y. Lee, J. C. K. Liew, et al. (2026). **Designing an English for Medical Purposes Course without a Language Unit: A Needs Analysis and Curricular Reform by Medical Specialists.** Manuscript in preparation.

Presentations

– **X. Liu** (2026, November). **Wharton AI for Society Lab: School Partnership Program Results Showcase** [Presentation]. Wharton AI & Analytics Initiative Advisory Board, Philadelphia, PA.
– **X. Liu** & X. He (2026, April). **Penn AI Pedagogy Initiative (PAPI)** [Poster presentation]. AI & Education Symposium, Graduate School of Education, University of Pennsylvania, Philadelphia, PA.
– **X. Liu**, Y. Huang, & Y. Yi (2026, April). **Gilgamesh as a Learning Environment: An Intelligent Tutoring System for Advanced Decision-Making** [Poster presentation]. AI & Education Symposium, Graduate School of Education, University of Pennsylvania, Philadelphia, PA.

Teaching Experience

Wharton AI for Society Research Lab, University of Pennsylvania 2026
Professional Development Facilitator, Teacher Training
– Delivered professional development for high school teachers at West Deptford High School (NJ) on classroom uses of Gemini and NotebookLM: two virtual workshops and one in-person demonstration, reaching about 50 to 60 educators.

Intercultural Leadership Program, ISSS, University of Pennsylvania 2025–present
Fellow (2025–2026); Student Leader and Curriculum Facilitator (2026–2027)
– Returned the following year as a Student Leader and Curriculum Facilitator after participating as a fellow; co-designed and co-facilitated the intercultural leadership curriculum with ISSS staff, including a three-day opening institute on intercultural communication and the CARDIGMA cross-cultural simulation.
– Selected as one of 34 fellows from 30 countries university-wide; mentoring incoming international students.

Adaptive Physical Education Course, Wuhan University 2022–2025
Peer Teaching Assistant *Instructor: Zhihua Lin*
– Peer-taught in a course for students unable to take regular PE due to disability, chronic illness, or mental health conditions: led Baduanjin practice for more than 20 classmates, coached movement and breathing alongside the instructor including outdoor practice in nature, facilitated class readings of the *Huangdi Neijing*, and collected coursework.

Panxiang Elementary School, Baishapu Town, Huangshi, Hubei Province, China 2024
Volunteer Teacher and Education Program Coordinator, China Education Support Program
– Taught ecological literature and aesthetic education for left-behind children in a low-income rural township; led about 20 fifth-graders through a complete reading of the novel *Wolf Totem*, with drawing, film, and discussion (five to six sessions weekly); coordinated caregiver workshops for 20+ families. Team awarded "National Outstanding Team."

Ziyang Street Sunshine Home, Wuhan, Hubei Province, China 2022
Volunteer Teacher
– Taught learners with intellectual and mental disabilities at a community center, pitched at an early primary-school level; adapted lessons to low difficulty and centered them on emotional experience and enjoyment.

Cambridge Interdisciplinary Online Teaching Program 2022
Teaching Assistant
– Returned the following year as a teaching assistant, after participating as a group leader and being named the program's sole Best Speaker among 120 participants; assisted with classroom management and after-class assignment guidance.

Shengyinshu (Sound Tree) Program, Qipanjie Primary School, Wuhan, Hubei Province, China 2021
Volunteer Teacher
– Taught primary-school children with hearing impairments; adapted a *Dream of the Red Chamber* performance with visual and nonverbal supports, and led art activities drawn from the novel.

Honors and Awards

- **Merit Scholarship ($10,000)**, University of Pennsylvania Graduate School of Education 2025
- **Third Place ($3,000), Multimodal Track**, Baidu ERNIE Hackathon (Baidu × OpenAtom Foundation) 2025
- **"National Outstanding Team" Award**, China Education Support Program 2024
- **International Exchange Scholarship ($6,000)**, Wuhan University 2024
- **Wang Xinggong Presidential Scholarship** (1 of 2 university-wide recipients), Wuhan University 2023
- **Outstanding Student**, Wuhan University 2022 and 2023
- **Academic Excellence Scholarship** (top 5% of students), Wuhan University 2022 and 2023
- **Best Speaker** (sole recipient among 120 participants), University of Cambridge 2021

Academic Leadership and Service

AIED@Penn (AI in Education Student Organization) 2025–present
Founder and Co-President; *Faculty advisors: Seiji Isotani and Brandon Krakowsky*

- Created AIED@Penn after finding no student community at Penn where AI and education met; grew it to 80+ members on WhatsApp and 620+ followers across LinkedIn and Instagram. The founding was profiled in Penn GSE news coverage, "Thinking Outside the Bot".
- Helped coordinate the two-day AI & Education Symposium at Penn GSE (100+ attendees, 10 sessions), which AIED@Penn co-hosted; invites speakers from industry, academia, and other fields to share experience and resources; sessions average more than 35 participants; events promoted by Penn GSE, Penn AI, and Penn Engineering; pitched and built partnerships with the Wharton AI & Analytics Initiative and Claude Builders Club @ Penn; received an OpenAI invitation for Penn Builder Night outreach.
- Co-founded HeartBridge with Annie Yang, a multimodal AI platform for at-home autism intervention incubated at AIED@Penn (third place, Baidu ERNIE Hackathon, 2025); led user research and outreach, then stepped back to focus on academics.

Penn AWDA (Asian Women Development Plan International, Penn Chapter) 2026–present
Founder and President

- Founded Penn's chapter of AWDPI, an international nonprofit supporting the development and empowerment of Asian women overseas; a registered Penn student organization with five departments (community support, personal development, research and policy, partnerships, media), recruiting its inaugural team.

Graduate and Professional Student Assembly (GAPSA), University of Pennsylvania 2026–2027
Deputy Director of Advocacy Administration

- Portfolio includes advocacy for first-generation, low-income (FGLI) graduate and professional students across Penn's 12 schools.

Wharton AI & Analytics Initiative, University of Pennsylvania 2025–present
Student Advisory Board Member

- Provides student-perspective input to WAIAI strategic planning discussions on reaching and serving students across Penn; promotes WAIAI events and programming through AIED@Penn.

Wenxin Palliative Care Volunteer Team, Zhongnan Hospital, Wuhan University 2024–2025
Volunteer Vice Captain; funded by the Li Ka Shing Foundation (Hong Kong)

- Organized support for terminal cancer and HIV patients and their families, including summer camps for patients' children; joined outreach trips around Wuhan for low-income migrant workers and families unaware such services existed.

"Horizon" Program; "Back to the Walled City" Team, Tsinghua University 2023–2024
Co-founding Editor of the "Cloud Coffee" Column; Field Researcher *Founder: Wei Qu*

- One of 40 members selected worldwide for the 7th cohort; in 2023, interviewed former Kowloon Walled City residents on cultural memory and self-organization.

Professional Experience

Penn Business Services, University of Pennsylvania 2026–present
Executive Strategy & Operations Intern *Supervisor: Ray Bates*

- Evaluated year-round operating and outsourcing models for Penn's Class of 1923 Arena, benchmarking five operators across 26 agreements; findings shared with divisional stakeholders and slated for broader leadership review.

Office of International Affairs, Wuhan University 2022–2024
Operations & Administrative Assistant, Eurasia-Africa Office

- Coordinated logistics for 10+ international delegations and the Luojia Global Summer School (50+ visiting students); managed the university's English-language website.
- Led the 50–60-member Wuhan University English-Language Press Corps under the Office of International Affairs, coordinating photographers and news reporters to cover international events and support the office's communications.

Methods and Software

Methods: survey design; program evaluation; regression and ANOVA; qualitative coding and discourse analysis; multimodal annotation; systematic review (PRISMA-ScR); experimental and quasi-experimental design; reinforcement learning.
Software: R, Python, SQL, SAS, SPSS, Stata, Qualtrics, NVivo, ELAN, Praat.

Languages

Mandarin Chinese (native)
English (fluent; IELTS 7.5)
French (intermediate).