Xiangyu Zhou

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EDUCATION

University of Michigan, Ann Arbor, MI — Ph.D. Candidate in Computer Science, Planned graduation year: 2027
Advisor: Dr. Steve Oney

University of Washington, Seattle, WA — B.S. in Computer Engineering, 2018–2022

RESEARCH EXPERIENCE

Simulation for Human–Computer Interaction — Ph.D. Research, University of Michigan (2025–ongoing)

- Studied how people move, decide, and adapt during cursor-based interaction tasks (e.g., lasso selection), and developed a user model that reproduces these behaviors to inform better interface design.
- Built a web-based experiment platform to collect human-cursor interaction trajectories across varied, realistic cursor interaction tasks.
- Evaluated how closely the simulator reproduces human data with controlled experiments.

Neuro-Symbolic Program Synthesis for Web Procedure Automation — Ph.D. Research, University of Michigan (2023–ongoing)

- Developed a system that generates reliable web procedure automation scripts by combining language model reasoning with a structured Domain-Specific Language (DSL) that supports webpage understanding and control flow (e.g., loops).
- Designed prompting strategies that accurately turn natural language instructions into DSL program capable of reasoning about webpage elements and actions.
- Designed and implemented the DSL and program generation approach on a web procedure automation benchmark of 120 real-world tasks.

Efficient Bottom-Up Synthesis for Programs with Local Variables — Ph.D. Research, University of Michigan (2022–2023)

- Developed an efficient and scalable program synthesis algorithm supporting free local variables.
- Evaluated performance on web procedure automation benchmark that contains 131 real-world tasks, demonstrated its efficiency and scalability.

Synthesizing Analytical SQL Queries from Demonstration — Undergraduate Research, University of Washington (2020–2022)

- Developed a novel program synthesis algorithm for automatically generating analytical SQL queries from user demonstrations.
- Evaluated the tool on 80 real-world query tasks and validated usability through quantitative and qualitative user studies.

PUBLICATIONS

(* denotes equal contribution)

- Efficient Bottom-Up Synthesis for Programs with Local Variables
  Xiang Li*, Xiangyu Zhou*, Rui Dong, Yihong Zhang, Xinyu Wang
  POPL 2024 (ACM SIGPLAN Symposium on Principles of Programming Languages)
- Synthesizing Analytical SQL Queries from Computation Demonstration
  Xiangyu Zhou, Rastislav Bodik, Alvin Cheung, Chenglong Wang
  Distinguished Paper Award
  PLDI 2022 (ACM SIGPLAN Conference on Programming Language Design and Implementation)

AWARDS & GRANTS

- OpenAI Researcher Access Program Grant, 2024
- Rackham Conference Travel Grant, 2023
- SIGPLAN Professional Activities Committee Award, 2023
- SIGPLAN Professional Activities Committee Award, 2022
- Distinguished Paper Award at PLDI, 2022

SERVICES

- Artifact Evaluation Committee Member — PLDI 2025, OOPSLA 2025, POPL 2024
- Student Volunteer — PLDI 2023

TEACHING

University of Michigan – Graduate Student Instructor

- EECS 183: Elementary Programming Concepts (Fall 2025)
- EECS 203: Discrete Mathematics (Spring 2025)
- EECS 481: Software Engineering (Fall 2023, Winter 2024)

University of Washington – Undergraduate Teaching Assistant

- CSE 461: Introduction to Computer Networks (Winter 2022)

TECHNICAL

Programming & Tools: Python, Java, Rust, C++, OCaml

Machine Learning & Artificial Intelligence: PyTorch, Nengo

Web & Experiment Platforms: React, Firebase

Data Analysis & Visualization: R, SQL