

Yiwen Dong

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EDUCATION

University of Waterloo, Waterloo, ON

Sep 2019 – *Expected* Aug 2025

Ph.D. Candidate in Computer Science – Advisor: Chengnian Sun

Northeastern University, Boston, MA

Sep 2016 – Dec 2018

B.S. in Computer Science – Minor in Computer Engineering (GPA: 3.9/4.0)

Honors: Dean's List

PROJECTS (*Selected*)

Automated Type Inference for Java Code Snippets

Spring 2020 – Present

- Developed static analysis technique for type inference on incomplete code.
- Published SnR, our technique using Datalog constraint solving, *doubling* prior tool's performance.
- Improved scalability of inference using constraint optimization, resulting in 98% accuracy.

Bash Empirical Study

Fall 2019 – 2021

- Published study on the common usage, code smell, and bugs in Bash scripts.
- Scraped 1.3 million Bash script from GitHub to learn from real-world examples.

Recumbent Bike for Disabled Youth

Fall 2017 – Winter 2019

- Lead a team of engineers designing and building a recumbent trike for young boy with disability, customized to fit his needs.

QEMU Live Migration Improvement

Spring 2018

- Implemented faster live migration method for memory-heavy virtual machines than QEMU default implementation by optimizing hot spots.

TECHNICAL KNOWLEDGE

Languages

- Java, Python, JavaScript, C, C++, MySQL

Frameworks

- Spring 4, Hibernate 4, React, jQuery, node.js, Express, MongoDB, JSP, JUnit, Maven

RESEARCH & TEACHING EXPERIENCE

University of Waterloo

Research Assistant

Fall 2019 – Present

- Conducted research on automated code analysis and repair.
- Published in top-tier software engineering venues.

Teaching Assistant

Fall 2019 – Present

- Designed rubrics, graded assignments, and provided feedback on projects.
- Courses: CS241 (Sequential Programs), CS 346 (App Dev), CS 446 (Software Design), SE 465 (Software Testing), CS 246 (OOP), CS 135 (Functional Programming)

PUBLICATIONS (*Selected*)

Yiwen Dong, et al. *Beyond Memorization: Evaluating the True Type Inference Capabilities of LLMs for Java Code Snippets*. **In Submission**

Yiwen Dong, et al. *SnR: Constraint-Based Type Inference for Incomplete Java Code Snippets*. **ICSE 2022**

Yiwen Dong*, et al. *Bash in the Wild: Language Usage, Code Smells, and Bugs*. **ACM TOSEM 2022**

Mengxiao Zhang, et al. *LPR: Large Language Models-Aided Program Reduction*. **ISSTA 2024**

Yongqiang Tian, et al. *Revisiting the Evaluation of Deep Learning-Based Compiler Testing*. **IJCAI 2023**