Yuhao Zhang

(608) 236-3965 · www.linkedin.com/in/yuhaoz · https://github.com/ForeverZyh

EDUCATION

University of Wisconsin-Madison   Aug 2019 - Present
PhD Student in Computer Science, GPA: 3.96   Madison, WI

Peking University   Sept 2015 - Jul 2019
B.S. in Computer Science and Technology, Summa Cum Laude, Outstanding Undergraduate Student   Beijing, CN

PUBLICATIONS

Linyi Li, **Yuhao Zhang**, Luyao Ren, Yingfei Xiong, Tao Xie, "Reliability Assurance for Deep Neural Network Architectures Against Numerical Defects" in *45th International Conference on Software Engineering (**ICSE** 2023)*, New Orleans, the United States

Yuhao Zhang, Aws Albarghouthi, Loris D'Antoni, "BagFlip: A Certified Defense against Data Poisoning" in *Thirty-sixth Conference on Neural Information Processing Systems (**Neurips** 2022)*, New Orleans, the United States

Yuhao Zhang*, Yasharth Bajpai*, Priyanshu Gupta*, Ameya Ketkar*, Miltiadis Allamanis, Titus Barik, Sumit Gulwani, Arjun Radhakrishna, Mohammad Raza, Gustavo Soares, and Ashish Tiwari, "Overwatch: Learning Patterns in Code Edit Sequences" in *Object-Oriented Programming, Systems, Languages & Applications (**OOPSLA** 2022)*, Auckland, New Zealand

Yuhao Zhang, Aws Albarghouthi, Loris D'Antoni, "Certified Robustness to Programmable Transformations in LSTMs" in *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (**Oral Presentation EMNLP** 2021)*, Online and Punta Cana, Dominican Republic

Yuhao Zhang, Luyao Ren, Liqian Chen, Yingfei Xiong, Shing-Chi Cheung, Tao Xie, "Detecting Numerical Bugs in Neural Network Architectures" in *Proceedings of the ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ACM Distinguished Paper Award ESEC/FSE** 2020)*, Online, the United States.

Yuhao Zhang, Aws Albarghouthi, Loris D'Antoni, "Robustness to Programmable String Transformations via Augmented Abstract Training" in *Proceedings of the Thirty-seventh International Conference on Machine Learning (**ICML** 2020)*, Online, Austria

Yuhao Zhang, Yifan Chen, Shing-Chi Cheung, Yingfei Xiong, and Lu Zhang, "An Empirical Study on Tensor-Flow Program Bugs" in *Proceedings of the 27th ACM SIGSOFT International Symposium on Software Testing and Analysis (**ISSTA** 2018)*, Amsterdam, Netherlands

PROFESSIONAL EXPERIENCE

Amazon   May 2023 - Aug 2023
Applied Scientist Intern - CodeWhisperer Team [Python]   New York, NY

· Improved the robustness of large language models for code generation by 41%.
· Designed and implemented a robust training framework that is integrated into **Amazon CodeWhisperer**.
· Contributed to the ReCode benchmark, providing evaluation for the robustness of code generation models.

Microsoft   May 2021 - Aug 2021 & Feb 2022 - April 2022
Research Intern - PROSE (Programming by Examples and Natural Language) Team [C#/Python]   Remote

· Worked on the Blue-Pencil project, one of the main projects behind **Visual Studio IntelliCode**.
· Designed the representation for storing thousands of source code editing patterns from developer traces.
· Implemented the framework that learns and applies hundreds of patterns and achieved 78% precision.
· Observed a 4X increase in the number of users using the tool because of the framework.

Microsoft Research   Sept 2018 - March 2019
Research Intern - DKI (Data, Knowledge, Intelligence) Group [C#/Python]   Beijing, CN

· Worked on **Ideas**, a plugin in Excel, which analyzes and provides high-level visual summaries for data analysts.
· Improved the classification accuracy of the intermediary model from 88% to 93% for six primary languages.
· Accelerated 4X column headers' matching speed with target phrases by implementing the Aho–Corasick algorithm.
· Tuned the hyperparameters of models by implementing a grid search algorithm, which is used by other groups.

· Won the **Award of Excellence** during the internship.

AWARDS

Research

· Neurips 2022 Top Reviewer
· ACM Distinguished Paper Award at ESEC/FSE 2020

ACM-ICPC

· Ho-Chi-Minh City Regional **4th place**, 2017
· Xi'an Regional **Gold**, 2017
· Yangon Regional **7th place**, 2016
· Dalian Regional **Gold**, 2016
· Hefei Regional **Gold** 2015

NOI

· National Olympiad of Informatics, **Gold Medal**, 2014

Scholarships

· Finalist in Two Sigma PhD Fellowship 2022
· SenseTime Scholarship 2019
· Suzhou Industrial Park Scholarship 2018
· Schlumberger Scholarship 2017
· iPinYou Scholarship 2016

SERVICE

BANDS 2023, Program Committee
FoMLAS 2023, 2022, 2021, Program Committee
ICML 2023, 2022, 2021, Reviewer
Neurips 2023, 2022, Reviewer
VMCAI 2023, Artifact Evaluation Committee
CAV 2021, Artifact Evaluation Committee