

# YUYAO WANG

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## RESEARCH INTEREST

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I am interested in topics related to the *correctness*, *programmability*, and *performance* of computer systems, with a recent focus on building expressive and performant data plane and control plane for large-scale clusters.

## EDUCATION

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### University of Washington

Ph.D. student in Computer Science

Sept. 2024 - now

Advisor: Prof. [Ratul Mahajan](#) & [Arvind Krishnamurthy](#)

### Nanjing University

B.S. in Computer Science

Sept. 2020 - June 2024

GPA: 4.71/5.00 (1/256)

## PUBLICATIONS

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(\* denotes equal contributions)

### [1] **NSDI'25 High-level Programming for Application Networks.**

Xiangfeng Zhu, [Yuyao Wang](#), Banruo Liu, Yongtong Wu, Nikola Bojanic, Jingrong Chen, Gilbert Bernstein, Arvind Krishnamurthy, Sam Kumar, Ratul Mahajan, Danyang Zhuo

*The 22nd USENIX Symposium on Networked Systems Design and Implementation (To Appear)*

### [2] **NeurIPS'23 Is Your Code Generated by ChatGPT Really Correct? Rigorous Evaluation of Large Language Models for Code Generation.**

Jiawei Liu\*, Chunqiu Steven Xia\*, [Yuyao Wang](#), Lingming Zhang.

*The 37th Annual Conference on Neural Information Processing Systems*

[paper](#)  $\diamond$  [leaderboard](#)  $\diamond$  [poster](#)  $\diamond$  [slides](#)  $\diamond$  [huggingface](#)  $\diamond$  [code](#)

### [3] **ESEC/FSE'23 NEURI: Diversifying DNN Generation via Inductive Rule Inference.**

Jiawei Liu, Jinjun Peng, [Yuyao Wang](#), Lingming Zhang.

*The 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering*

[paper](#)  $\diamond$  [slides](#)  $\diamond$  [artifact](#)

 **ACM SIGSOFT Distinguished Paper Award**

## RESEARCH EXPERIENCE

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### Research Intern, System Group, UW

July 2023 - Feb. 2024

Advised by Prof. [Ratul Mahajan](#) and [Arvind Krishnamurthy](#)

Topic: *Application-Defined Networks*

- Developed AppNet [1], a framework for building expressive and high-performance application networks. AppNet can express common RPC processing tasks in only **7-28** lines of code, and its optimizations lower RPC processing latency by up to **82%**.

### Research Intern, PL/FM/SE Group, UIUC

Sept. 2022 - June 2023

Advised by Prof. [Lingming Zhang](#)

Topic: *Software Testing, SE4LLM*

- Designed a benchmarking framework EvalPlus [2] that leverages LLM- and mutation-based methods to augment evaluation datasets with large amounts of testcases for rigorously evaluating the functional correctness of LLM synthesized code. EvalPlus has over **400k** downloads on HuggingFace, and has been integrated by Google, Meta, Alibaba Qwen, DeepSeek, Amazon, etc.
- Proposed an automated fuzzing approach NEURI [3] that leverages program synthesis to generate diverse and well-formed deep-learning models in order to validate DL toolchain. **100** new bugs were found for PyTorch and TensorFlow via NEURI, of which **10** bugs are labeled *high priority* or *security vulnerability*.

## SELECTED AWARDS

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- ACM SIGSOFT Distinguished Paper Award (**Top 2%** of 473 ESEC/FSE submissions) Dec. 2023
- Gold Medal**, International Collegiate Programming Contest (ICPC) Asia Regional Contest (Xi'an) Dec. 2022
- Gold Medal**, International Collegiate Programming Contest (ICPC) Asia Regional Contest (Shanghai) Dec. 2021
- Special Scholarship for Undergraduates in Basic Science (1/20), Nanjing University Oct. 2022
- China National Scholarship (**Top 0.2%**) Sept. 2021
- Silver Medal**, National Olympiad in Informatics (NOI) July 2018

## SKILLS

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- **Common:** C/C++, Python, Rust, Go, Bash, Git, Docker,  $\LaTeX$
- **Machine Learning:** PyTorch
- **Cloud Infrastructure:** Kubernetes, Istio, Envoy