

# HANFEI YU

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## RESEARCH INTERESTS

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My research interests lie in **Large-Scale AI/ML Systems, LLM serving Systems, Reinforcement Learning Systems, Serverless Computing, and Cloud Computing**. Specifically, I focus on optimizing serverless computing systems with AI-driven techniques and building efficient serverless systems for AI training and serving.

## EDUCATION

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<b>Stevens Institute of Technology, Hoboken, NJ, USA</b> Doctor of Philosophy in Computer Engineering	Sep 2024 - Present
<b>Louisiana State University, Baton Rouge, LA, USA</b> Doctor of Philosophy in Computer Science (transferred out) <i>GPA: 3.72/4.0</i>	Sep 2021 - Aug 2024
<b>University of Washington, Tacoma, WA, USA</b> Master in Computer Science and Systems <i>GPA: 3.96/4.0</i>	Sep 2019 - Feb 2021
<b>Shanghai Jiao Tong University, Shanghai, China</b> Bachelor in Electronic Engineering	Sep 2015 - July 2019

## WORK EXPERIENCE

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<b>Stevens Institute of Technology, Hoboken, NJ, USA</b> <i>Research Assistant</i> <ul style="list-style-type: none"><li>IntelliSys Lab</li></ul>	Sep 2021 - Present
<b>Microsoft Azure Research, Redmond, WA, USA</b> <i>Research Intern at Azure Research Systems</i> <ul style="list-style-type: none"><li>Characterized production workloads of Azure Container Instances and Azure Kubernetes Services.</li><li>Optimized resource efficiency of container orchestration by designing new solutions.</li></ul>	May 2024 - Aug 2024
<b>Louisiana State University, Baton Rouge, USA</b> <i>Research Assistant</i> <ul style="list-style-type: none"><li>IntelliSys Lab</li></ul>	June 2021 - Aug 2024
<b>Louisiana State University, Baton Rouge, USA</b> <i>Teaching Assistant</i> <ul style="list-style-type: none"><li>CSC 4501 Computer Networks, CSC 3501 Computer Organization &amp; Design, CSC 3102 Advanced Data Structures and Algorithms Analysis, CSC 2259 Discrete Structures, CSC 1350 Introduction to Computer Science</li></ul>	Jan 2020 - June 2020
<b>University of Washington, Tacoma, USA</b> <i>Research Assistant</i> <ul style="list-style-type: none"><li>Cloud and Distributed Systems (CDS) Research Lab</li></ul>	Sep 2020 - Jan 2021

University of Washington, Tacoma, USA

Jan 2020 - June 2020

*Teaching Assistant*

- TCSS 305 Programming Practicum, TCSS 422 Operating Systems

Intel, Shanghai, China

Aug 2018 - Feb 2019

*Asia-Pacific Research & Development Ltd*

*Software Developer Intern, UEFI-BIOS Development Group*

- Contributed to the development of a UEFI Driver, which works cross-platform on Windows and Linux. The driver filters, extracts, and analyzes network packets by leveraging an open-source library called PCAP. I also helped implement and test new features of the driver.
- Wrote Shell and Python scripts to enable automatic driver installation, dependency collection, and product testing using internal tools.

## PUBLICATIONS

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**Nitro: Boosting Distributed Reinforcement Learning with Serverless Computing**

Hanfei Yu, Jacob Carter, Hao Wang, Devesh Tiwari, Jian Li, Seung-Jong Park

*The International Conference on Very Large Data Bases (VLDB 2025)*

**Pre-Warming is Not Enough: Accelerating Serverless Inference With Opportunistic Pre-Loading**

Yifan Sui, Hanfei Yu, Yitao Hu, Jianxun Li, Hao Wang

*ACM Symposium on Cloud Computing (SoCC 2024, Best Paper Award)*

**Freyr+: Harvesting Idle Resources in Serverless Computing via Deep Reinforcement Learning**

Hanfei Yu, Hao Wang, Jian Li, Xu Yuan, Seung-Jong Park

*IEEE Transactions on Parallel and Distributed Systems (TPDS 2024)*

**Stellaris: Staleness-Aware Distributed Reinforcement Learning with Serverless Computing**

Hanfei Yu, Hao Wang, Devesh Tiwari, Jian Li, Seung-Jong Park

*The International Conference on Very Large Data Bases (SC 2024, Best Student Paper Finalist)*

**Cheaper and Faster: Distributed Deep Reinforcement Learning with Serverless Computing**

Hanfei Yu, Jian Li, Yang Hua, Xu Yuan, Hao Wang

*Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI 2024)*

**RainbowCake: Mitigating Cold-starts in Serverless with Layer-wise Container Caching and Sharing**

Hanfei Yu, Rohan Basu Roy, Christian Fontenot, Devesh Tiwari, Jian Li, Hong Zhang, Hao Wang, Seung-Jong Park

*ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2024)*

**Libra: Harvesting Idle Resources Safely and Timely in Serverless Clusters**

Hanfei Yu, Christian Fontenot, Hao Wang, Jian Li, Xu Yuan, and Seung-Jong Park

*ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC 2023)*

**Accelerating Serverless Computing by Harvesting Idle Resources**

Hanfei Yu, Hao Wang, Jian Li, Xu Yuan, Seung-Jong Park

*ACM Web Conference (WWW 2022)*

**FaaSRank: Learning to Schedule Functions in Serverless Platforms**

Hanfei Yu, Athirai A. Irissappane, Hao Wang, Wes J. Lloyd

*IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS 2021)*

**FaaSRank: A Reinforcement Learning Scheduler for Serverless Function-as-a-Service Platforms**

Hanfei Yu

*Master Thesis, University of Washington*

**Enhancing Observability of Serverless Computing with the Serverless Application Analytics Framework**

Robert Cordingly, Navid Heydari, Hanfei Yu, Varik Hoang, Zohreh Sadeghi, Wes Lloyd

*ACM/SPEC International Conference on Performance Engineering (ICPE 2021)*

**The Serverless Application Analytics Framework: Enabling Design Trade-off Evaluation for Serverless Software**

Robert Cordingly, Hanfei Yu, Varik Hoang, Zohreh Sadeghi, David Foster, David Perez, Rashad Hatchett, Wes Lloyd

*International Workshop on Serverless Computing (WoSC 2020)*

**Leveraging GPT-2 for Classifying Spam Reviews with Limited Labeled Data via Adversarial Training**

Athirai A. Irissappane, Hanfei Yu, Yankun Shen, Anubha Agrawal, Gray Stanton

*arXiv preprint*

**Implications of Programming Language Selection for Serverless Data Processing Pipelines**

Robert Cordingly, Hanfei Yu, Varik Hoang, David Perez, David Foster, Zohreh Sadeghi, Rashad Hatchett, Wes J Lloyd

*IEEE International Conference on Cloud and Big Data Computing (CBDCom 2020)*

**ACADEMIC SERVICES**

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**2024**

USENIX Conference on File and Storage Technologies (FAST), Artifact Evaluation Program Committee

International Conference on Learning Representations (ICLR), Reviewer

IEEE International Conference on Parallel and Distributed Systems (ICPADS), Technical Program Committee

ACM The Web Conference (WWW), Artifact Evaluation Program Committee

Performance Evaluation (PEVA), Reviewer

IEEE Transactions on Computers (TC), Reviewer

IEEE Transactions on Mobile Computing (TMC), Reviewer

IEEE Transactions on Parallel and Distributed Systems (TPDS), Reviewer

IEEE Internet of Things Journal (IoTJ), Reviewer

IEEE Transactions on Network Science and Engineering (TNSE), Reviewer

**2023**

Journal of Systems Architecture (JSA), Reviewer IEEE Transactions on Cloud Computing (TCC), Reviewer

IEEE Global Communications Conference (GLOBECOM), Reviewer

European Conference on Artificial Intelligence (ECAI), Reviewer

IEEE Transactions on Parallel and Distributed Systems (TPDS), Reviewer

**2021**

EAI International Conference on Ad Hoc Networks (AdHocNets), Reviewer