




# Yuze Li

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## EDUCATION

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<b>Virginia Tech</b> <i>PhD in Computer Science (advisors: Ali R. Butt, Huaicheng Li)</i>	Aug 2021 - present Blacksburg, VA
<b>Northeastern University (CN)</b> <i>Bachelor of Engineering in Software Engineering</i>	Aug 2016 - Jun 2020 Shenyang, China

## RESEARCH AREAS

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**CXL, Programming Language Runtime, Compiler, Distributed Systems**

## PUBLICATIONS

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**Yuze Li**, Shunyu Yao. [Understanding and Optimizing Serverless Workloads in CXL-Enabled Tiered Memory](#). 2023. ([pdf](#))

Ahmad Khan, **Yuze Li**, Xinran Wang, Sabaat Haroon, Haider Ali, Yue Cheng, Ali Butt, Ali Anwar. [Towards Cost-effective and Resource-aware Aggregation at Edge for Federated Learning](#). BigData '23, Nov 2023. ([pdf](#))

**Yuze Li**, Kevin Assogba, Abhijit Tripathy, Moiz Arif, M. Mustafa Rafique, Ali R. Butt, Dimitrios Nikolopoulos. [Towards Persistent Memory based Stateful Serverless Computing for Big Data Applications](#). 2022. ([pdf](#))

**Yuze Li**, Kaijun Wang, Hehui Gu. [Maven Loss with AGW-Net for Biomedical Image Segmentation](#). ICCAI '20, Apr 2020. ([pdf](#))

## POSTER

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**Yuze Li**, Shunyu Yao, Jaiaid Mobin, M. Mustafa Rafique, Dimitrios Nikolopoulos, Kirshanthan Sundararajah, Huaicheng Li, Ali R. Butt. [Towards Efficient Python Interpreter for Tiered Memory Systems](#). FAST '24, Work-in-Progress, Feb 2024. ([pdf](#))

## RESEARCH EXPERIENCE

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**Explore compiler, runtime co-design for workload running in tiered memory** Oct 2024 - present

- Identify code segments that lead to different levels of memory access intensities.
- Leverage both static analysis and runtime decision models to dynamically adjust memory allocation according to access patterns.

**Efficient memory tiering for Python applications** Jul 2023 - Oct 2024

- Develop a light-weight marking and sampling approach in CPython interpreter.
- Infer Python objects hotness using statistics approaches based on reference count changes.
- Employ a software-level page table with bucketing and adaptive lazy demotion to guide migration across hybrid memory.

**Resource-awared aggregation analysis for federated learning** Mar 2022 - Apr 2023

- Probe the current FL aggregators performance at the edge under changing demands.
- Develop an adaptive FL aggregator methodology under different FL client scales, system configurations, and enabled cost and efficiency trade-off.

**Study of I/O interference among Serverless functions** May 2022 - Dec 2022

- Use Firecracker and containerd to hold function instances, explored the I/O interference of functions creating snapshots to regular booted functions.
- Experiment on asynchronous I/O for snapshot image writing.

## EXTERNAL REVIEW

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**PPoPP '25, CGO '25, HPDC '24**

## WORK EXPERIENCE

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**Software R&D Intern - OS Kernel Lab, Huawei Co., Ltd**

June 2024 - Aug 2024

- Prelim analysis on compiler-assisted object temperature detection.
- Replace hardware-based sampling with LLVM-IR interposing to capture object accessed addresses and use OS strategy to migrate.

**Graduate Teaching Assistant - CS3214 Computer Systems**

Aug 2021 - Jan 2024

- Hold office hours for undergrad students on course related projects.

**Software Testing Intern - Qianxun SI Co., Ltd**

Mar 2021 - Jul 2021

- Help analyze system robustness and refactor C++ code to meet MISRA rules.
- Develop useful Python tools to automatically format XML to Doc files.

## SKILLS

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**Languages:** C/C++, Shell, Python, Golang

**Tools and Ecosystems:** OpenWhisk, OpenFaaS, Git, Docker, containerd, AWS (EC2, Lambda, S3, SNS)

## AWARDS

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**Computer Science Scholars and Pratt Fellowship (Virginia Tech)**

Jan 2023

**USENIX Student Travel Grant: FAST '22, '23, '24**