

# Shunyu (David) Yao

shunyu@vt.edu

## EDUCATION

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**Virginia Tech**, Blacksburg, VA, United States

*Ph.D. Student*, Computer Science

August 2020 - May 2025 (Expected)

**University of Virginia**, Charlottesville, VA, United States

*Master of Computer Science (M.CS.)*, Computer Science

September 2018 - August 2020

**BNU - HKBU United International College**, Zhuhai, China

*Bachelor of Science (B.S.)*, Computer Science and Technology

September 2014 - June 2018

## PROJECT EXPERIENCE

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### **Towards a Stateful Serverless Platform for HPC Applications**

Distributed Systems & Storage Laboratory, Virginia Tech

September 2022 - Current

- Investigated state-of-the-art research on stateful serverless computing to identify the potential design challenges of accommodating HPC applications onto serverless.

### **Automated FaaSification of Monolithic HPC Workloads**

Distributed Systems & Storage Laboratory, Virginia Tech

March 2021 - Current

- Created a tool that automates the process of dynamically decomposing HPC workloads into serverless functions that are deployment ready with fine-tuned performance

### **CyberInfrastructure for Waterborne Antibiotic Resistance Risk Surveillance**

Distributed Systems & Storage Laboratory, Virginia Tech

September 2020 - May 2021

- Enabled flexible pipeline by refactoring components into serverless microservices

### **Checkpoint/Restart Containerized GPU Tasks**

University of Virginia (Advisor: Dr. Andrew Grimshaw)

September 2019 - May 2020

- Evaluated existing attempts to capture out-of-kernel GPU states during runtime

## WORK EXPERIENCE

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### **Graduate Research Assistant**

Distributed Systems & Storage Laboratory, Virginia Tech

September 2021 - Current

- Project: Automated FaaSification of Monolithic HPC Workloads; Stateful Serverless Platform for HPC

### **Research Aide Intern**

Programming Models & Runtime Systems Group, Argonne National Lab

June 2021 - August 2021

- Helped developing OSHMPI, an implementation of OpenSHMEM on MPI

### **Graduate Teaching Assistant**

Virginia Tech

September 2020 - May 2021

- Teaching Assistant for Computer Organization (CS2506)

### **Distributed Systems Intern**

Lancium

June 2019 - August 2019

- Automated HPC resource management and task containerization using Ansible, Slurm, Docker and Singularity

## PUBLICATION

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**Shunyu (David) Yao**, Muhammad Ali Gulzar, Liqing Zhang, Ali R. Butt. 2021. Towards a Serverless Bioinformatics Cyberinfrastructure Pipeline. In Proceedings of the 1st Workshop on High Performance Serverless Computing (HiPS '21), June 25, 2021, Virtual Event, Sweden. ACM, New York, NY, USA, 8 pages. <https://doi.org/10.1145/3452413.3464787>

## SKILLS

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**Programming Languages:** Python, C/C++, Bash, MPI, OpenMP, CUDA, Matlab

**Frameworks:** AWS Lambda, Ansible, Slurm, Docker, Kubernetes, Singularity, Flask

**Languages:** English, Mandarin (Native Speaker)