

Tongzhou Gu

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Education

Southern University of Science and Technology

Sep. 2018 – Jun. 2022

Bachelor in Computer Science and Engineering

Shenzhen, China

- **GPA per year:** 3.82/4.0 (3rd Year), 3.69 (2nd Year), 3.38 (1st Year)
- **Overall GPA:** 3.60/4.0, **Average Score:** 86.7

King Abdullah University of Science and Technology

Jan. 2022 – Jun. 2022

Visiting Student, VSRP Program

Remote

- **Topic:** NoReduce: SmartNIC Offload of All-Reduce Operation for Distributed Machine Learning Systems
- **Supervisor:** Prof. Marco Canini

Research Interests

HPC Systems, Embedded Systems, Systems for ML

- Currently I am interested in accelerating large-scale ML training with comprehensive approaches including compiler-based optimization, topology-aware scheduling, and hardware offloading (GPU / Network / ASIC)

Internship Experience

Amazon Web Services Shanghai AI Lab

Jul. 2021 – Present

Software Development Engineer Intern

Shanghai, China / Remote

- Designing and implementing distributed sharding system on a next generation deep learning framework based on TVM Machine Learning Compiler with MXNet Team members

Student Cluster Competitions

SC21 Student Cluster Competition

Nov. 2021

3rd Place, Highest HPCG, Highest Linpack Benchmark Winner (Team Captain)

Virtual

2021 APAC HPC-AI Competition

Nov. 2021

1st Place, AI Special Prize (Team Member)

Virtual

ASC20-21 Student Supercomputer Challenge

May. 2021

1st Prize, 5th Place (Team Member)

Shenzhen, China

SC20 Student Cluster Competition

Nov. 2020

18th Place (Team Member)

Virtual

2020 APAC HPC-AI Competition

Nov. 2020

3rd Place (Team Member)

Virtual

ASC19 Student Supercomputer Challenge

Mar. 2019

2nd Prize (Team Captain)

Virtual

Research Projects

Performance interference study of co-located containers

Sep. 2021 – Present

- Discovering the performance interference within multiple Docker or Singularity containers under various affinity settings on the same physical machine
- **Supervisor:** Prof. Zhuozhao Li

Runtime characterization of distributed graph machine learning system

Sep. 2020 – Jul. 2021

- Investigating the performance bottleneck of DGL Library using profiling tools and performance monitors
- **Supervisor:** Prof. Georgios Theodoropoulos

Course Projects

MALLOC (Memory Allocation Leakage Live Observer and Capturer)

May. 2021

- A monitor tracing memory allocation and accessing behavior of a Linux program without root or kernel permission
- Exploiting Memory Page-Level Protection to capture realtime memory access requests in user space
- Exploiting Runtime Interposition to hijack GNU C Library and override memory allocation algorithm

DNS (Data in Naked DNS)

Dec. 2019

- An implementation of VPN over DNS tunneling

Scholarship

SUSTech Outstanding Student Scholarship

Nov. 2021

2nd Prize

SUSTech Freshman Scholarship

Sep. 2018

3rd Prize

Other Experience

Teaching Assistant

Jan. 2021 – Jun. 2021

Dept. of Computer Science and Engineering, SUSTech

Student Assistant

Jul. 2020 – Present

Center for Computational Science and Engineering, SUSTech

Peer Tutor

Oct. 2019 – Dec. 2019

Learning Center, SUSTech

Participant

Aug. 2019

OpenACC GPU Application Hackathon 2019

Shenzhen, China

Participant

Jul. 2019 – Aug. 2019

NUS SOC Summer Workshop 2019

Singapore

Skills

English : IELTS 6.5 pts (Listening: 6, Reading: 7.5, Writing: 6, Speaking: 5.5)

Programming Languages : Python, C/C++, Java, Rust, MATLAB

Frameworks : TVM, CUDA, MPI, OpenMP, OpenACC

Others : Linux Operations and Maintenance

¹Last updated on November 29, 2021