

# Tongzhou Gu

(Hidden) | nekodaemon.com | Tonny-Gu  
gutongzhou@gmail.com | gutz2018@mail.sustech.edu.cn

## Education

### Southern University of Science and Technology

Sep. 2018 – Present

*Bachelor in Computer Science and Engineering<sup>1</sup>*

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

TBD

*Visiting Student, VSRP Program*

Remote

- **Topic:** High-efficiency AI and ML distributed systems at Big-Learning scales
- **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

- Designed and implemented 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 (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

- Discovers 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

- Investigates 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
- Exploits Memory Page-Level Protection to capture realtime memory access requests in user space
- Exploits 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

**Framework** : TVM, CUDA, MPI, OpenMP, OpenACC

**Others** : Linux Operations and Maintenance

---

<sup>1</sup>Expected Jun. 2022