



Hemu Liu

Curriculum Vitae

*"Bring forward what is true, Write it so that it is clear,
Defend it to your last breath!" - Ludwig Boltzmann*

Education

2022–2025 **Junior(Grade 3) Student of Computer Science**, *Southern University of Science and Technology*, Shenzhen, GPA 3.72/4.
Specialized in HPC&AI

Awards

2025 3rd Prize, HUAWEI ICT Challenge Competition
2024 1st place provincially, 3rd Prize on final, Global Campus Artificial Intelligence Algorithm Elite Competition
2024 1st Prize, ASC24 Student HPC Challenge
2024 Group Competition Award, ASC24 Student HPC Competition
2024 7th Place, ISC24 Student HPC Challenge
2024 Merit Award, IndySCC24 Student HPC Challenge
2024 Excellent Student, NUS SOC Summer Workshop
2023 2nd Place, APAC HPC-AI Competition
2023 Merit Student Scholarship for Exceptional Performance
2022 2nd Place, SUSTech Entrepreneurial Practice Competition
2022 Outstanding Freshman Winner, The 1st SUSTech Student Cluster Competition

Research/Program Experience

- *Federated learning method for medical disease diagnosis based on foundation model*
Supervisors Professor Jiang Liu & Researcher Heng Li @SUSTech
Description an innovative federated structure for medical image disease classification using multimodal foundation model.

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Result On Progress

- *Ophthalmic image quality evaluation algorithm based on medical knowledge*

Supervisors Professor Jiang Liu & Researcher Heng Li @SUSTech

Description an innovative method for ophthalmic image quality classification using multimodal large model.

Result 10000 CNY funded by Entrepreneurship program for college students

- *Cloud-naive Application: Group Up*

Supervisors Professor Richard TB Ma @NUS

Description an cloud-naive application designed and deployed with kubernetes.

Result Excellent Project of NUS SoC

- *hGEMM Optimization on HUAWEI KUNPENG CPU*

Supervisors Assistant Professor Zhuozhao Li @SUSTech

Description Optimization of hGEMM based on the architecture of HUAWEI KUNPENG CPU, using the brand-new extended ISA to write assembly code for hGEMM

Result 3rd prize

- *Hairy shrimp disaster early warning system based on deep neural network*

Supervisors Professor Jian Lin @SUSTech

Description an innovative method for ophthalmic image classification using multimodal large model.

Result 10000 CNY Funded by AIOR@SUSTech, On Progress

Overall Research/Program Interests

Generally speaking, in the age of Artificial Intelligence (especially Large-scale Foundation Model), what I care about most and keen on can be summarized to 3 core aspects and it can be concluded as a Top-down view:

- **Hardware Cost and Efficiency**
- **Customization of Large-scale Foundation Model**
- **Accessible User Usage**

Designing artificial intelligence models that can operate on large-scale distributed computing systems is my dream. I firmly believe that only with a profound understanding of computer architecture can better artificial intelligence algorithms be designed. I think my thoughts are close to the recent hot-spot DeepSeek which not only developed the famous v3 and R1 LLM, but also developed the fantastic DeepGEMM for hardware architecture specific optimization and login-free user service. For the 3 core aspects mentioned above, I think here has 3 corresponding technologies and research directions which are distinct but closely related I have dived.

AI Fine-tuning Algorithm of Large-scale Foundation Model

- the application and fine-tune of large models(especially Vision Model) to real problems

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HPC High-Performance Computer(Distributed&Communication Network) Optimization of AI Application

- Maximize the performance of server clusters with cutting-edge chip architectures, Message Passing Interface Library, especially focusing on hardware acceleration for basic algorithms like GEMM in the AI field

Cloud Cloud Service for AI

- develop&operation on cloud-naive application especially AI-Service using Kubernetes etc.

Work Experience

Vocational

2024–Present **President**, SUSTECH-HUAWEI STUDENT DEVELOPER COMMUNITY, Shenzhen.
Research Harmony OS development technology, and organize students to learn.

2024–Present **Member**, ACM SIGHPC, Beijing.
Student Membership

2024–Present **Member**, SZCCF, Shenzhen.
Student Union

2023–Present **President**, HUAWEI CLOUD-SUSTECH ICT CLUB, Shenzhen.
Undertake workshop activities sponsored by Huawei Cloud to publicize and popularize Huawei cloud technology.

2023–Present **Team Member**, IMED, Shenzhen.
Engaged in the research of eye image processing based on artificial intelligence.

2022–Present **Team Member**, SUSTECH SST HPC TEAM, Shenzhen.
Work on Science and Engineering Computing Center.

- Engaged in high performance computing related research
- Operation and maintenance for the high performance computing cluster "Qiming"
- Participated in high performance computing related international competitions on behalf of the school

Miscellaneous

2023–Present **President of vision department**, SUSTECH CONVERGENCE MEDIA CENTER, Shenzhen.
Responsible for organizing students to complete the video recording, editing and release of large-scale interviews and activities of the school.

2023–2024 **Senior counselor**, SUSTECH ZHIXIN COLLEGE, Shenzhen.
Tutoring and assisting junior students in their college life.

Computer skills

Intermediate MATLAB,C/C++, Docker, Kubernetes

Advanced JAVA, PYTHON,BASH, L^AT_EX

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Communication Skills

- 2024 Oral Presentation at NUS SOC Summer Workshop Singapore
- 2024 Oral Exhibition at the SC24 Atlanta
- 2024 Oral Presentation at the SCA24 Sydney
- 2022 Excellence Award in Freshman Speech Contest

Languages

Chinese **Mothertongue**

English **Intermediate**

Conversationally fluent, CET4:601, CET6:555, IELTS:6.5

Interests

- Violin
- Mathematics
- Basketball
- Piano
- Philosophy
- Table Tennis

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