CHENG PENG

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🎓 EDUCATION

ShanghaiTech University, Shanghai, China   2020 – Present

Bachelor of Engineering in Computer Science. Expected graduation date: June 2024

- Overall GPA 3.89/4, ranked 2/176
- Major GPA 4/4.
- CS major courses taken:

  CS100 Introduction to computer programming, A+
  CS101 Data Structure and Algorithm, A+
  CS110 Computer Architecture, A+
  CS120 Computer Network, A+
  CS121 Parallel Computing, A
  CS130 Operating System, A+
  CS240 Algorithm Design and Analysis, A+
  CS244 Theory of Computation, A

💻 TA EXPERIENCES

CS101 Data Structure and Algorithm at ShanghaiTech SIST, Shanghai, China   Sep. 2022 – Jan. 2023

Teaching Assistant   Leader of the programming assignments group.

- In charge of setting four programming assignments.
- Maintain online judge system for the programming tasks.
- Carry out weekly recitation.
- Problem setter of homework covering asymptotic analysis, disjoint set union and NP-completeness.

CS110 Computer Architecture at ShanghaiTech SIST, Shanghai, China   Feb. 2023 – June. 2023

Teaching Assistant   of the computer architecture course in the semester of Spring 2023

- Task setter of two programming homework.
- Design a project on performance optimization (discover bottleneck with profiler, improving cache hit rate, leveraging OpenMP thread parallelism and utilizing SIMD vectorization).
- Hold lab session weekly.

🖧 PROJECTS

Parallel K-means in C++   Apr. 2021 – Jun. 2021

Programmer   Individual course project of CS100 Introduction to Programming.

- Data parallel with C++ `std::thread`.
- Manually vectorization with Intel AVX2 SIMD instructions.
- Improve cache hit rate by transposing the access pattern.

PintOS   Sep. 2022 – Jan. 2023

Programmer   Course project of CS130 Operating System. Collaborated with Huizhe Su, my fiancee.

- Implementing Thread scheduling and synchronization primitives.
- Implementing User program loading and argument passing.
- Implementing various system call handlers.
- Implementing page table management and swapping.

- Implementing basic file system with ext2 alike structure.
- Pass all the test case.
- Write clear and concise design document.

Athernet   Sep. 2022 – Jan. 2023

Architect and Programmer   Course project of CS120 Computer Network. In collaboration with beloved Huizhe Su.

- Well-organized with `cargo-workspace`. Written in pure rust.
- Physics layer that send/receive chunk of data over acoustic channel either wireless or cabal-connected.
- MAC sublayer with CSMA/CD enabling bidirectional point-to-point reliable data transmission.
- IP protocol for network layer. A gateway with NAT. ICMP ping request and response.
- Basic TCP and UDP protocol support. Providing socket API that resembles rust `std::net::TcpStream`.
- FTP client with limited functionalities on Athernet.
- SOCKS5 proxy server for tunneling normal network traffic through Athernet.

⚙ SKILLS

- English Proficiency:
  - **TOEFL 103** (R 29, L 29, S 23, W 22).
  - Most of the course I've taken are taught in English.
  - English working environment in my previous TA experiences.

- Programming Skills:
  - Express thoughts fluently with **Rust** and **Python**.
  - Proficient in **C++** and **C**.
  - Basic knowledge in **Haskell** as well as **Scala**.

- Developing Environment:
  - Using **Arch Linux** on a daily basis for more than 2 years.
  - Working with **i3wm**, **fish shell**, **neovim** and **tmux** efficiently at ease.
  - Good command of **git** version control system and **lazygit** TUI git client.

♡ HONORS AND AWARDS

Not interested in glorify myself, I never apply for a scholarship or award.

𝐢 MISCELLANEOUS

- Github: `https://github.com/hehelego`
- Dotfiles: `https://github.com/hehelego/dotfiles`
- Personal notebook: `https://github.com/hehelego/WhyNotMarkdown`