HAOYANG SHI

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EDUCATION

Zhejiang University — Hangzhou, China
B.S. in Computer Science — Sep 2018 – Present

- GPA: 3.82/4.00 (86/100)

RESEARCH EXPERIENCE

Zhejiang University (State Key Lab of CAD & CG) — Hangzhou, China
Research Assistant under Professor Weiwei Xu — March 2021 – Present

Auto quantization in taichi compiler for physical simulations

- Learned the Material Point Method and Finite Element Methods and the implementations.
- Proposed a scheme to estimate the bits required for expressing a certain variable; a following self-designed experiment proved its feasibility.
- Participated in an ongoing effort to merge the feature into the taichi compiler.

Zhejiang University (Laboratory of Cyber Science and Technology) — Hangzhou, China
Team member of ZJU representatives for National Computer System Capability Challenge — April 2021 – Aug 2021

AMipsel: an advanced mipsel processor

- A robust, configurable self-designed pipelining superscalar MIPS processor, little-endian.
- Scored a 83.7x performance surplus over the baseline (highest in the contest history).
- Full-on operating system support including TLB and hardware interrupt; Booted successfully with the operating system offered by the contest.
- Fully responsible for the design, testing, integration and quantified optimization of the cache system. Deeply engaged in the pipeline implementation and the QEMU differential test framework for linux.

Zhejiang University (Intelligent Computing and System Lab) — Hangzhou, China
Team member in an undergraduate student research group of three — Sep 2020 – May 2021

Enchecap: An enclave-based heterogeneous calculation protocol based on Nvidia CUDA and Intel Secure Guard Extension (https://github.com/vtu81/Enchecap)

- Learned and examined the security fundaments of Intel SGX and relevant hardware protection researches on GPUs; acquired throughout insight on the GPU computing model.
- Designed the heterogeneous calculation protocol under the attack model that GPU vram is inaccessible to the malicious.
- Responsible for the GPU side of the project: RSA cryptosystem implementation in native CUDA and its integration into the heterogeneous system.
- Nominated as the National Innovation Project and issued 1 patent application.

SELECTED AWARDS AND HONORS

- First Prize (rank 2/121) in National Computer System Capability Challenge — 2021
- First Prize in the Chinese Mathematics Competitions (Provincial) — 2019
- First Prize in CPhO (Provincial) — 2017

ADDITIONAL INFORMATION

Additional Professional and Extracurricular Experiences

- Member, Soccer School Team of CKC college (Sep. 2018-Present), won the 7th place out of 32 teams in school soccer championship 2020; scored 2 goals in all tournaments.
- Copiloted a social service to promote first-aid measures in practice (Guangzhou, Aug 2020); repertoire includes Heimlich Maneuver, CPR on dummies and AED guide;

Interests

- Soccer, Chess, Cycling

Computer and Language Skills

- Programming: Python, C/C++, Javascript, scala
- Languages mastered: English(fluent), Chinese(native), Cantonese(fluent)