

Haoran Dang (党浩然)

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EDUCATION

- **University of Chinese Academy of Sciences** 2022-09 ~ Present
Institute of Computing Technology, Chinese Academy of Sciences Beijing, China
Master's Student of Electronic and Information Engineering in Computer Technology
Supervisor: Prof. Dongrui Fan GPA: 3.81/4 Rank: 2/41 (4.9%)
Selected courses: High Performance Computing System (97), Advanced Operating System (93), Intelligent Computing Systems (93), Parallel and Distributed Computing (88), Advanced Computer Architecture (84)
- **ShanghaiTech University** 2018-09 ~ 2022-06
Bachelor of Engineering in Computer Science and Technology Shanghai, China
GPA: 3.50/4 Rank: 55/194 (28.4%)
Selected courses: Operating System I (A+), Parallel Computing (A), Computer Programming (A), Algorithm and Data Structure (A-), Computer Network (A-), Software Engineering (A-), Computer Architecture II (grad level, A-)

RESEARCH & PROJECTS

– Publications

1. Haoran Dang, Chongnan Ye, Yanpeng Hu, and Chundong Wang, “**NobLSM: An LSM-tree with Non-blocking Writes for SSDs**,” *DAC 2022* (CCF-A, EI, ISTEP).
2. Haoran Dang, Meng Wu, Mingyu Yan, Xiaochun Ye, and Dongrui Fan, “**GDL-GNN: Applying GPU Dataloading of Large Datasets for Graph Neural Network Inference**,” *Euro-Par 2024* (CCF-B, EI, ISTEP).
3. Duo Wang, Mingyu Yan, Yihan Teng, Dengke Han, Haoran Dang, Xiaochun Ye, and Dongrui Fan, “**A Transfer Learning Framework for High-accurate Cross-workload Design Space Exploration of CPU**,” *ICCAD 2023* (CCF-B, EI, ISTEP).

– Research

- **Lab of Graph Intelligent Machine (GIMLab)** HTCRC, ICT, CAS 2021-12 ~ Present
Director: Assoc. Prof. Mingyu Yan Beijing, China
 - Currently conducting research to accelerate the mini-batch inference process for GNNs on GPU platforms. Use GPU memory to statically cache the first-layer outputs of high-degree nodes to speed up inference and alleviate the neighbor explosion, reducing average batch inference time by up to 68.2%.
 - Conducted research to accelerate full-graph GNN accurate inference on multi-GPU platforms. Developed and implemented GDL-GNN, an optimized GPU data-loading method based on graph partitioning to minimize data accesses outside GPU memory, resulting in a 59.9% performance improvement over the baseline. (See Pub. 2)
 - Developed an undergraduate FYP on optimizing GNN training, using OpenMP to halve training times by implementing a multithreaded dataloader. Awarded the SIST Outstanding Thesis.
- **Toast Lab** SIST, ShanghaiTech 2021-07 ~ 2022-02
PI: Assist. Prof. Chundong Wang Shanghai, China
 - Designed and implemented NobLSM's database component, utilizing a modified ext4 to minimize costly `fsyncs` in LSM by removing them in Compactions, and delaying deletions of old SSTables until the corresponding newly compacted SSTables have been safely stored to maintain data consistency and safety. Demonstrated enhanced performance via benchmarking, showing a reduction of 84.9% on `fsyncs` and improved database performance. (See Pub. 1)

– Projects

- **Pintos** (As the course project of Operating System I in ShanghaiTech) 2020-09 ~ 2021-01
 - Implemented a multi-threading kernel with scheduling & thread management, user program & system calls, virtual memory, and file system with buffer cache.

– TEACHING

- **Operating Systems I (TA)** ShanghaiTech Fall, AY 2021-2022

SKILLS

- **Programming Languages & Frameworks:** Proficient in C/C++ and Python, with knowledge in PyTorch, DGL, Verilog, Shell scripting, and \LaTeX .
- **Languages:** Mandarin Chinese (native), English (fluent)
 - **TOEFL iBT** Score: 107 (Reading: 29 Listening: 27 Speaking: 23 Writing: 28) 2024-04
 - **GRE General Test** Score: 328 (Verbal: 158 Quantitative: 170 Analytical Writing: 4) 2022-08

CERTIFICATES & AWARDS

- **Outstanding Student (AY 2023-2024)** UCAS 2024-05
- **2022 SIST Outstanding Thesis** (for undergraduate final year project) ShanghaiTech 2022-06
- **Excellent Individual of Industrial Practice in Class of 2018** ShanghaiTech 2021-06
- **Excellent Individual of Social Practice in 2019** ShanghaiTech 2019-11

VOLUNTARY SERVICE

- **20th Public Science Day of ICT, CAS** On-site camera operator for livestream. ICT, CAS 2024-05
- **“Sunflower Activity” - Haidian Hospital Volunteers** Assistance in the Service Center ICT, CAS 2023-12
- **2020 Campus Opening Day** Participated in device check and exam download. ShanghaiTech 2020-07
- **2019 Admission Consultation** Participated in admission consultation in Beijing. ShanghaiTech 2019-06