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CONTACT INFORMATION

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EDUCATION

National University of Singapore, Singapore. 2023–2025(Expected)
- Master of Computing, Computer Science Specialization. GPA: 4.4/5.0

South China University of Technology (SCUT), Guangzhou, China. 2019–2023
- B.Eng., Software Engineering. GPA: 3.6/4.0

PRIZES AND AWARDS

- **Excellent Degree Dissertation of South China University of Technology** 2023
- **Honorable Mention** in Mathematical Contest in Modeling 2023
- **National Scholarship** 2022
- ***Bronze Medal (46th)*** in ICPC Asia-East Continent Final(Xi An) 2022
- ***101/1608*** in CCF-DBCI Competition of "Small Sample Data Classification" 2022
- ***Silver Medal (46th)*** in ICPC Asia Regional Contest(Ji Nan) 2021
- ***44/3567*** in CCF-DBCI Competition of "Recognition of figure skaters' skeleton points based on Paddle" 2021
- ***First Prize*** in National Olympiad in Informatics in Province(NOIP) 2017

RESEARCH EXPERIENCE

- ***Research Assistant: optimization for large language Model inference*** in **National University of Singapore**
  Advisor: Prof. Bingsheng HE May-Sept. 2024
  - Design a new 2-bit KV Cache quantization for LLMs base on attention patterns. achieve over 200% accuracy improvement at same compression rate.
  - Implement a adaptive API for popular inference frameworks like Python' s `transformers`, boosts batch size by 60% without increasing memory consumption.
  - Under review at ICLR 2025.
- ***Internship: Cryptography Engineer*** in **Nanyang Technological University**
  Advisor: Prof. Hongjun WU Jan.-Dec. 2024
  - Design a *'XAXX'* structure to efficiently utilize the distinct pipelines of both ARM and x86 (with AES-NI) architectures, achieving high IPC.
  - Build a new AEAD (Authenticated Encryption with Associated Data) cipher named *'HiAE'* based on the *'XAXX'* structure, which is 16× faster on ARM and 13× faster on x86-64 processors than AES-256-GCM.
  - Optimized it by inline assembler, make it as the fastest AEAD solution on both latest ARM and x86 processors, creating new performance record of 328Gbps on AEAD mode.
  - Under review at FSE (Fast Software Encryption) 2025
- ***Symmetric Matrix Solving Algorithm Parallel Optimization for ARM Architecture***
  Advisor: Prof. Deyou TANG May-Dec. 2022

- Optimize and parallel Bounded Bunch-Kaufman Algorithm(*sysv_rk subroutine of LAPACK) for solving symmetric matrix on ARM server processor with NEON instruction set and openMP.
- Implement a parallel column reordering method in row swap of solving symmetric matrix to enhance memory access locality for column major matrix for better cache hit rate and parallelism, achieving a performance improvement from 320Gflops to 580Gflops.
- Implement the same optimization on Skylake Intel processor and achieve 2-5x multi-core speedup than MKL library for *sytrs_3 subroutine of LAPACK.
- Awarded as the Excellent Degree Dissertation of South China University of Technology.

Technical Skills

- *English*: IELTS(6.5), CET-4, CET-6.
- *Programming Languages*: C/C++, Fortran, p4-16, Python, SQL, LaTeX.
- *Technical Skills*: openMP, SIMDs(NEON, AVX512), MPI, PyTorch, CUDA.
- *TestDemo Certificate*: C++, TOP 10%, LINUX, TOP 10%, PYTHON, TOP 10%.
- *Kaggle Certificate*: Data Visualization, Intro to Machine Learning, Intro to Deep Learning, Intro to Game AI and Reinforcement Learning.

Exchange Experience

- **Online Academic Program on Machine Learning, McGill University** Jan.-Feb. 2022