



CHOU-YING HSIEH

+1608-217-7129 | littleuniverse24@gmail.com | [personal website](#) | [Google Scholar](#) | [LinkedIn](#)

EDUCATION

- **Honorary Associate, Department of Electrical and Computer Engineering** Sep. 2025 - Present
University of Wisconsin-Madison, Madison, Wisconsin, United States Advisor: Prof. Tsung-Wei Huang
- **PhD, Graduate Institute of Electrical Engineering** Jul. 2018 - Present
National Taiwan University, Taipei, Taiwan Advisor: Prof. Sy-Yen Kuo
- **Bachelor, Department of Electrical Engineering** Jul. 2013 - Jun. 2017
National Cheng Kung University, Tainan, Taiwan

EXPERIENCE






- **MediaTek**  Jul. 2018 - Sep. 2018
Software Intern Hsinchu, Taiwan
 - Implemented reinforcement learning on cache simulator, enhancing cache miss rate by 10%-15% with smart phone modem data
- **BiiLabs**  Jul. 2017 - Sep. 2017
Intern Tainan, Taiwan
 - Developed a distributed ledger technology (DLT) system upon the chain called IOTA and maintain document

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, P=PATENT, S=IN SUBMISSION, T=THESIS

- [C.1] **Chou-Ying Hsieh**, Po-Hsiu Cheng, Chia-Ming Chang, Sy-Yen Kuo (2023). **A decentralized frontier queue for improving scalability of breadth-first-search on gpus**. In *Design, Automation & Test in Europe Conference & Exhibition (DATE)*, pp. 1-6. IEEE. 17-19 April 2023, Antwerp, Belgium.
- [C.2] Yen-Fu Liu, **Chou-Ying Hsieh**, Sy-Yen Kuo. (2023). **Boomerang: Physical-Aware Design Space Exploration Framework on RISC-V SonicBOOM Microarchitecture**. In *2023 IEEE 34th International Conference on Application-specific Systems, Architectures and Processors (ASAP)*, pp. 85-93. IEEE. 19-21 July 2023, Porto, Portugal.
- [C.3] **Chou-Ying Hsieh**, Po-Chieh Lin, Sy-Yen Kuo (2025) **Accelerating Push-Relabel Algorithm on GPU via Two-Level Parallelism Paradigm and Efficient CSR Designs**. In *29th Annual IEEE High Performance Extreme Computing (HPEC)*, early accept
- [S.1] **Chou-Ying Hsieh**, Chia-Ming Chang, Po-Hsiu Cheng, Sy-Yen Kuo (2024). **Accelerating Maximal Biclique Enumeration on GPUs**. Manuscript submitted for publication in *IEEE Transactions on Computers*.
- [S.2] **Chou-Ying Hsieh**, Chien-Hsien Wu, Sy-Yen Kuo (2025). **CHROMA: Coloring with High-Quality Resilient Optimized Multi-GPU Allocation**. Manuscript submitted for publication in *IEEE International Parallel & Distributed Processing Symposium*.


PROJECTS

- **GPU-accelerated Graph Algorithms** Sep. 2022 - Present
Tools: C++, CUDA    
 - Developed high-performance GPU frameworks for BFS, maximum biclique enumeration, and push-relabel max-flow, achieving up to **3-12x speedup** over existing GPU baselines.
 - Designed and optimized CUDA kernels with cache-aware processing, decentralized frontier queues, and load-balanced task scheduling.
- **Self-supervised Graph Neural Networks** Sep. 2023 - Present
Tools: Python, PyTorch, PyG, DGL 
 - Designed **Self-Reinforced Graph Contrastive Learning (SRGCL)**, a self-supervised GNN framework achieving **state-of-the-art graph-level classification accuracy**.
- **Physical-aware Design Space Exploration** Sep. 2022 - Jul. 2023
Tools: C, Python, GNN, Synthesis simulators
 - First paper taking the congestion into the consideration of exploration.
 - Developed a GNN-based hardware predictor for improving the sampling quality on Bayesian optimization.



SKILLS

- **Programming Languages:** C/C++, CUDA, Python, Rust, Shell script
- **Data Science & Machine Learning:** PyTorch, Tensorflow, PyG, DGL
- **Cloud Technologies:** Amazon EC2
- **DevOps & Version Control:** git, docker, Linux
- **Specialized Area:** High-performance computing, Parallel computing, GPU-accelerated graph processing system, Graph neural network, GPU-accelerated EDA tools, Software transactional memory (STM)
- **Research Skills:** Writing and publishing academic papers, Algorithm development and optimization, Graph processing systems on GPUs, Graph neural networks and high-performance processing on GPUs

HONOR AND LEADERSHIP

- **Overseas Research Scholarship for Doctoral Students** Sep. 2025
National Science and Technology Council (NSTC), Taiwan
 - Awarded to outstanding graduate students demonstrating exceptional academic performance and research potential. Competitive nationwide selection.
- **Research Lead** Sep. 2020 - Present
National Taiwan University/ Dependable Distributed Systems and Networks Lab 
 - Assisted in supervising over 10 master's students to successfully complete their studies.
 - Led the planning and execution of two three-year research projects funded by Taiwan's National Science Council.

TEACHING

- **Teaching Assistant - Fault Tolerant Computing** Sep. 2022 - Jan. 2023
Graduate Institute of Electrical Engineering, National Taiwan University 
 - Assisted in preparing and delivering course materials on fault-tolerant systems and techniques for ensuring reliability.
 - Evaluated assignments, quizzes, and exams, providing detailed feedback to enhance student learning.
- **Teaching Assistant - Discrete Mathematics** Feb. 2020 - Jul. 2020
Department of Electrical Engineering, National Taiwan University 
 - Assisted in creating assignments and quizzes to test comprehension of topics like Boolean algebra and relations.
 - Evaluated assignments, quizzes, and exams, providing detailed feedback to enhance student learning.

ADDITIONAL INFORMATION

Languages: Chinese (Proficiency level), English (Proficiency level)

Interests: Researching, Surfing, Dancing, Camping