

EDUCATION

- **University of Wisconsin, Madison** Madison, WI
PhD in Electrical and Computer Engineering Aug. 2023 – Present
 - **Research:** High-Performance Computing, Graph Algorithms
- **University of Utah** Salt Lake City, UT
Master of Entertainment Arts and Engineering Aug. 2020 – May. 2022
- **National Cheng Kung University** Tainan, Taiwan
Bachelor of Science in Computer Science Sept. 2015 – June. 2019

EXPERIENCE

- **Student Researcher** Google, Mountain View, CA
AI Chips Team May 2024 – Aug. 2024
 - Designed algorithms that parallelize SPICE simulation while pruning unnecessary input patterns to improve in-house timer performance.
 - Achieved up to **20× speedup** when analyzing timing on various designs.
- **Software Engineer Intern** Intel Corporation, Santa Clara, CA
Design Methodology and Automation Team May 2022 – Aug. 2022
 - Utilized a constraint analyzer to automate FPGA design debugging.
- **Software Testing Intern** Collins Aerospace, Salt Lake City, UT
Software Verification Team Feb. 2021 – Dec. 2021
 - Built a regression test tracking system to automatically generate test plans for QA engineers.

PROJECTS

- **G-PathGen: An Efficient GPU-parallel Critical Path Generation Algorithm**
 - Designed efficient GPU kernel algorithms for parallel critical path generation and dynamically adjusted the generated path count to maximize GPU utilization while minimizing redundant work.
 - Achieved **1.6–243.8× speedup** and **100% accuracy** compared to a state-of-the-art GPU solution when generating one million paths on large designs.
- **PathGen: An Efficient Parallel Critical Path Generation Algorithm**
 - Designed a multi-level queue scheduler to efficiently schedule parallel exploration of similar-priority paths.
 - Achieved **2.7–7.4× speedup** with 16 threads and **nearly 100% accuracy** compared to a state-of-the-art single-threaded timer when generating one million paths on large designs.
- **Ink: Efficient Incremental k-Critical Path Generation**
 - Designed an algorithm that efficiently identifies a set of paths to reuse for the next query and effectively prunes the path search space.
 - Achieved **5.2–22.4× speedup** and **20–31% less memory usage** compared to a state-of-the-art timer when generating one million paths on large designs.

PUBLICATIONS

- **PathGen: An Efficient Parallel Critical Path Generation Algorithm** **ASP-DAC 2025**
 - **Che Chang**, Boyang Zhang, Cheng-Hsiang Chiu, Dian-Lun Lin, Yi-Hua Chung, Wan-Luan Lee, Zizheng Guo, Yibo Lin, Tsung-Wei Huang
 - **Best Paper Nominee (13 out of 169 accepted papers)**
- **Ink: Efficient Incremental k -Critical Path Generation** **DAC 2024**
 - **Che Chang**, Tsung-Wei Huang, Dian-Lun Lin, Guannan Guo, Shiju Lin

SKILLS

- C++, CUDA