Cheng-Hsiang Chiu

https://cheng-hsiang-chiu.github.io/

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Education

- **University of Wisconsin-Madison** — Madison, Wisconsin, USA
  Ph.D. in Electrical and Computer Engineering — *Aug. 2023 – Present*
- **École Polytechnique Fédérale de Lausanne** — Lausanne, Switzerland
  Master of Science in Computer Science — *Sep. 2013 – Feb. 2016*
- **National Chiao Tung University** — Hsinchu, Taiwan
  Master of Science in Communication Engineering — *Sep. 2005 – Aug. 2007*
- **National Chung Cheng University** — Chiayi, Taiwan
  Bachelor of Science in Electrical Engineering — *Sep. 2001 – Jun. 2005*

Ongoing Projects

- **RL Scheduling**: Developing a RL scheduling for CAD graph-based timing workloads.
- **Taskflow**: Developing a dynamic task graph scheduling library in Taskflow (https://taskflow.github.io).
- **Pipeflow**: Developing a task-parallel pipeline scheduling framework with token-dependency atop Taskflow (https://taskflow.github.io).

Selected Experience

- **U of Utah** — Utah, USA
  Ph.D. Researcher — *Aug. 2020 - Aug. 2023*
  - **Taskflow**: Worked on the development of Taskflow.
- **Intel** — Texas, USA
  Software Intern — *May 2022 - Aug. 2022*
  - **SYCL**: Worked on the development of implicit SYCL Graph.
- **Cadence** — Texas, USA
  Software Intern — *May 2021 - Aug. 2021*
  - **Buffer Insertion Acceleration**: Accelerated the executions of buffer insertion algorithm by 16%.

Selected Publications

- **C.H. Chiu**, C. Morchdi, Y. Zhou, B. Zhang, C. Chang, and T.W. Huang, "Reinforcement Learning-generated Topological Order for Dynamic Task Graph Scheduling", *HPEC*, 2024.
- C. Morchdi, **C.H. Chiu**, Y. Zhou, and T.W. Huang, "A Resource-efficient Task Scheduling System using Reinforcement Learning," *ASP-DAC*, 2024.
- **C.H. Chiu**, D.L. Lin, and T.W. Huang, "Programming Dynamic Task Parallelism for Heterogeneous EDA Algorithms," *ICCAD*, 2023.
- **C.H. Chiu** and T.W. Huang, "Efficient Timing Propagation with Simultaneous Structural and Pipeline Parallelisms," *DAC*, 2022.
- **C.H. Chiu**, D.L. Lin, and T.W. Huang, "An Experimental Study of SYCL Task Graph Parallelism for Large-Scale Machine Learning Workloads," *Euro-Par*, 2021.

Skills

- **Language**: C, C++, Python, Javascript, HTML, SQL
- **Unit Test**: doctest
- **Profiler**: gprof, perf
- **Programming Model**: Taskflow, SYCL, oneTBB (Pipeline), OpenMP, Cilk,Pytorch