Cheng-Hsiang Chiu

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Education

- **University of Utah** — Salt Lake City, USA
  Ph.D. in Electrical and Computer Engineering — *Aug. 2020 – 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

- **Taskflow**: Developing a pipeline scheduling framework (Pipeflow) on top of Taskflow (https://taskflow.github.io).
- **syclFlow**: Leveraging a task graph algorithm of CUDA graph into a SYCL runtime.

Experience

- **Cadence** — Texas, USA
  Software Intern — *May 2021 - Aug. 2021*
  - **Buffer Insertion Acceleration**: Accelerated the executions of buffer insertion algorithm by 16%.
- **UiT** — Tromso, Norway
  Doctoral Researcher — *Feb. 2019 - Dec. 2019*
  - **Edge computing**: Implemented an energy efficient framework to classify Arctic wild animals in-situ.
  - **Power data**: Performed data cleansing and developed visualization framework of power data in Tromso, Norway.
- **University of Khalifa** — Abu Dhabi, UAE
  Assistance Researcher — *Jan. 2018 - Nov. 2018*
  - **Graphene**: Automated python-meep for materials modeling and designed data visualization frameworks for it.
  - **Sand classification**: Developed classification techniques to obtain the components of sands in Nigeria.
- **CERN** — Geneve, Switzerland
  Software Developer — *Mar. 2015 - Aug. 2015*
  - **Consistency checking**: Developed a kernel package to discover devices and perform consistency checking.

Publications

- C.H. Chiu and T.W. Huang, "Composing Pipeline Parallelism using Taskflow Control Graph," *HPDC*, 2022.
- C.H. Chiu and T.W. Huang, "Efficient Timing Propagation with Simultaneous Structural and Pipeline Parallelisms," *DAC*, 2022.
- C.H. Chiu, T. W. Huang, Z. Guo, and Y. Lin, "Pipeflow: An Efficient Task-Parallel Pipeline Programming Framework using Modern C++," *Arxiv*, https://arxiv.org/abs/2202.00717.
- 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.
- Two in WSN, two in load balancing, two in computer vision.

Skills

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