Dian-Lun Lin's Resume

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EDUCATION

PhD – ECE Department, University of Utah — *Utah, US*; Jan. 2020 – present
MS – EECS Department, National Taiwan University — *Taipei, Taiwan;* Sep. 2017 – Jun. 2019
BS – EE Department, National Cheng Kung University — *Tainan, Taiwan*; Sep. 2013 – Jun. 2017

RESEARCH Interests:

Parallel and Heterogeneous Computing, Electronic Design Automation (EDA), Machine Learning

Research Achievements

I'm a fourth-year Ph.D. student at the Department of Electrical and Computer Engineering at the University of Utah. During my recent three-year Ph.D. studies, I have published **four top-tier papers** (one paper in DAC 2023 cooperated with NVIDIA Research, one paper in ICPP 2022 cooperated with NVIDIA Research, one paper in Euro-Par 2021, and one journal in IEEE TPDS 2022, all as the **first author**). I received **second place** in ACM/PACT Student Research Competition (SRC 2022). I also received the **champion award** in a research competition (IEEE HPEC Challenge 2020). I was a presenter at the biggest C++ conference (CppCon 2021). My recent work focuses on building a CPU-GPU task programming system using modern C++ coroutine and CUDA.

Open-Source Projects

Software	GitHub
SNIG: Accelerated Large Sparse Neural Network Inference using Task Graph Parallelism	https://github.com/dian-lun-lin/SNIG - Champion of 2020 IEEE HPEC Neural Network Challenge - Implemented in CUDA, CUDA Graph, and Taskflow
Taskflow: A General-purpose Parallel and Heterogeneous Task Programming System	https://github.com/taskflow/taskflow - 2nd Place of Open Source Software Award in ACM MM19 - Best Poster Award in 2018 C++ Conference (CppCon)
RTLflow: From RTL to CUDA - A GPU acceleration flow for RTL simulation with multiple testbenches	https://github.com/dian-lun-lin/verilator_rtlflow - Cooperated with NVIDIA Research - Accepted by ICPP 2022

Selected Awards

- Second place in ACM/PACT Student Research Competition (SRC), 2022
- Presenter in CppCon, 2021 (the largest C++ conference in the world)
  - cudaFlow: A Modern C++ Programming Model for GPU Task Graph Parallelism
- Champion of the IEEE/MIT/Amazon HPEC Large Sparse Neural Network Challenge, 2020
- ACM ISPD Wafer-Scale Physics Modeling Contest – Honorable Mention, 2021
- ACM/IEEE DAC Young Student Fellowship, 2021
- ACM/IEEE DAC Young Student Fellowship, 2020
- Best Master Thesis Nomination, Department of EE, NTU, 2019
- Presidential Award, Department of EE, NCKU, Fall 2015

Work Experience

- Research Intern at NVIDIA (full time) *NVIDIA, US*; May. 2022 – Aug. 2022
- Research Intern at NVIDIA (part time) *NVIDIA, US*; Aug. 2021 – Nov. 2021
- Research Intern at NVIDIA (full time) *NVIDIA, US*; May. 2021 – Aug. 2021
- Graduate Teaching Assistant for "Object-Oriented Programming" *University of Utah, US*; Sep. 2020 – Dec. 2020
- Graduate Teaching Assistant for "Algorithms" *National Taiwan University, Taiwan;* Sep. 2018 – Jan. 2019
  National Taiwan University, Taiwan; Sep. 2017 – Jan. 2018
- *Research Assistant at NTU AI center* *National Taiwan University, Taiwan;* Sep. 2018 – Dec. 2018
- Web Backend Engineer at Edent *Kaohsiung, Taiwan;* Jan. 2016 – July. 2017

Papers

- **Dian-Lun Lin**, Yanqing Zhang, Haoxing Ren, Shih-Hsin Wang, Brucek Khailany, and Tsung-Wei Huang, "GenFuzz: GPU-accelerated Hardware Fuzzing using Genetic Algorithm with Multiple Inputs", ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, 2023 (top-tier conference in comptuer-aided design field)
- **Dian-Lun Lin**, Haoxing Ren, Yanqing Zhang, Brucek Khailany and Tsung-Wei Huang, "From RTL to CUDA: A GPU Acceleration Flow for RTL Simulation with Multiple Testbenches," *ACM International Conference on Parallel Processing (ICPP), 2022* (top-tier conference in parallel computing field)
- **Dian-Lun Lin** and Tsung-Wei Huang, "Accelerating Large Sparse Neural Network Inference using GPU Task Graph Parallelism," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2022 (top-tier journal in parallel computing field)
- **Dian-Lun Lin** and Tsung-Wei Huang, "Enabling Efficient GPU Computation using Task Graph Parallelism," *European Conference on Parallel and Distributed Computing (Euro-Par),* 2021 (top-tier conference in parallel computing field)
- **Dian-Lun Lin** and Tsung-Wei Huang, "A Novel Inference Algorithm for Large Sparse Neural Network using Task Graph Parallelism", *IEEE High-performance and Extreme Computing Conference (HPEC),* 2020 (champion award)
- Tsung-Wei Huang, **Dian-Lun Lin**, Chun-Xun Lin, and Yibo Lin, "Taskflow: A Lightweight Parallel and Heterogeneous Task Graph Computing System", *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2022
- Cheng-Hsiang Chiu, **Dian-Lun Lin,** and Tsung-Wei Huang, "An Experimental Study of SYCL Task Graph Parallelism for Large-Scale Machine Learning Workloads", *International Workshop of Asynchronous Many-Task systems for Exascale (AMTE)*, Portugal, 2021.
- Tsung-Wei Huang, **Dian-Lun Lin**, Yibo Lin, and Chun-Xun Lin, "Taskflow: A General-purpose Parallel and Heterogeneous Task Programming System", *IEEE Transactions on Computer-aided Design of Integrated Circuits and Systems (TCAD)*, 2021

Master Thesis

- Analysis of Network Creation Game with Imperfect Monitoring (Game Theory) *NTU;* Sep. 2017 – Jun. 2019

Activities

- Program Committee in CppNow, 2023
- Program Committee in CppCon, 2022
- Reviewer in DAC 2023 - “Design Automation Conference”, California, USA
- Reviewer in DAC 2022 - “Design Automation Conference”, California, USA

Talks

- CppCon 2021 https://youtu.be/-tIQbIhTAv8?t=2344
- IPDPS 2022 https://youtu.be/00K8S3tNUSg

Societies

- Utah Dance Contest – **Top 4** *Utah, US; 2021*
- University of Utah Taiwan Student Association Cooking Contest – **3rd place** *Utah, US; 2021*
- Invited dancer for 2019 Double Tenth Day parade – in front of **presidential palace** *Taipei, Taiwan; 2019*
- Invited dancer for 2017 Taiwan Power Company’s year-end banquet *Taichung, Taiwan; 2017*
- Volunteer teacher at Tainan Jingliao Elementary School *Tainan, Taiwan; 2014*
- Cycling around Taiwan *Taiwan; 2012*

SKILLS

C++11/14/17/20, CUDA, Parallel Programming, Python, Web Development, Vim