Dian-Lun Lin's Resume

https://dian-lun-lin.github.io | https://github.com/dian-lun-lin | dianlun.lin@wisc.edu

EDUCATION

University of Wisconsin-Madison *US; 2020 - present*

PhD in Computer Engineering

Thesis: Task-parallel Heterogeneous Programming System for Logic Simulation, Advisor: Tsung-Wei Huang

National Taiwan University *Taiwan; 2017 - 2019*

MS in Computer Science

National Cheng Kung University *Taiwan; 2013 - 2017*

BS in Electrical Engineering

RESEARCH INTERESTS

Parallel and Heterogeneous Computing, Modern C++ concurrency, Scheduling, GPU-accelerated EDA

SELECTED AWARDS

- ACM/IEEE DAC Young Student Fellowship, 2023
- Second place in ACM/PACT Student Research Competition (SRC), 2022
- ACM ISPD Wafer-Scale Physics Modeling Contest – Honorable Mention, 2021
- ACM/IEEE DAC Young Student Fellowship, 2021
- Champion of the IEEE/MIT/Amazon HPEC Large Sparse Neural Network Challenge, 2020
- 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 *Remote, US*; May. 2022 – Aug. 2022
  - Topic: GenFuzz: GPU-accelerated Hardware Fuzzing using Genetic Algorithm
  - Team: Design Automation Research
  - Advisor: Mark Ren, Yan Zhang, and Brucek Khailany
- Research intern at NVIDIA *Remote, US*; May. 2021 – Nov. 2021
  - Topic: RTLflow: A GPU Acceleration Flow for RTL Simulation
  - Team: Design Automation Research
  - Advisor: Mark Ren, Yan Zhang, and Brucek Khailany

SELECTED PAPERS

- **Dian-Lun Lin** (co-first author), Boyang Zhang, Che Chang, Cheng-Hsiang Chiu, Bojue Wang, Wan Luan Lee, Chih-Chun Chang, Donghao Fang, and Tsung-Wei Huang, "G-PASTA: GPU Accelerated Partitioning Algorithm for Static Timing Analysis," *ACM/IEEE Design Automation Conference* (*DAC*), 2024
- **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),* 2023
- **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
- **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
- 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
- **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

- **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**)

TALKS

- NERSC - GPUs for Science Day *California, US; 2023*
  - Title: A Task Graph-based Programming System for CPU-GPU Heterogeneous Computing
- The C++ Conference *Colorado, US; 2023*
  - Title: Taro: Task Graph-based Asynchronous Programming Using C++ Coroutines
- The C++ Now Conference *Colorado, US; 2023*
  - Title: An Introduction to C++ Coroutines Through a Thread Scheduling Demonstration
- Berkeley National Lab *Remote, US; 2023*
  - Title: An Introduction to C++ Coroutines Through a Thread Scheduling Demonstration
- The C++ Conference *Colorado, US; 2021*
  - Title: cudaFlow: A Modern C++ Programming Model for GPU Task Graph Parallelism
- MediaTek Research *Remote, US; 2023*
  - Title: Accelerating Hardware Design Verification: Exploring Simultaneous Execution with RTLflow and GenFuzz
- NVIDIA Research *Remote, US; 2022*
  - Title: G-Fuzz: GPU-accelerated hardware fuzzing
- NVIDIA Research *Remote, US; 2021*
  - Title: RTLflow: A GPU acceleration flow for parallel RTL simulation

ACADEMIC SERVICE

- Program Committee in CppNow, 2024
- Program Committee in CppCon, 2023
- Program Committee in CppNow, 2023
- Program Committee in CppCon, 2022
- Invited reviewer of *Concurrency and Computation: Practice and Experience*, 2024
- Invited reviewer of *IEEE Access Journal*, 2023
- Invited reviewer of *The Journal of Supercomputing*, 2023

OPEN-SOURCE PROJECTS

- Taro: Task-based asynchronous programming system using C++ Coroutine
  - https://github.com/dian-lun-lin/taro
  - Presented in CppCon 2023
- Taskflow: A General-purpose Parallel and Heterogeneous Task Programming System
  - https://github.com/taskflow/taskflow
  - Core developer
- RTLflow: From RTL to CUDA - A GPU acceleration flow for RTL simulation with multiple inputs
  - https://github.com/dian-lun-lin/verilator_rtlflow
  - Cooperated with NVIDIA Research
  - Second place at PACT Student Research Competition 2022
- 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

INVITED POSTS

- A Concise Introduction to Coroutines
  - https://www.modernescpp.com/index.php/a-concise-introduction-to-coroutines-by-dian-lun-li/
- Coroutines: A Scheduler for Tasks
  - https://www.modernescpp.com/index.php/coroutines-a-scheduler-for-tasks-by-dian-lun-li/