

Yu-Tung Liu

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Research Interests

AI Hardware / Software Co-Design, Electronic Design Automation, Agentic EDA

Education

University of Maryland, College Park

PhD in Computer Engineering

College Park, MD, USA

Sept. 2025– Present

National Chiao Tung University (NCTU)

B.S. Electrical and Computer Engineering

Hsinchu, Taiwan

Sept. 2022– June 2024

Research & Professional Experiences

University of Maryland, College Park

Graduate Research Assistant (with Prof. Cunxi Yu)

College Park, MD, USA

Sept. 2025 – Present

- Proposed agentic AI systems for chip design automation, leading to publications at top venues (DAC 2026, ICLAD 2026) on LLM-driven standard cell optimization and autonomous RTL design agent that achieves 100% pass rate on VerilogEval-V2

Academia Sinica - Bio-ASP Lab, Research Center for Information Technology Innovation

Research Assistant (with Dr. Yu Tsao)

Taipei, Taiwan

Nov. 2024 – July 2025

Research Intern (with Dr. Yu Tsao)

July 2023 – July 2024

- Introduced a generative method and a state space model to surface electromyography denoising framework - both methods generated denoised signals of 4% and 14% higher quality respectively compared to the previous method

Republic of China Army Conscription

- Finished military training and joined the defense of Guandu Area Command

Yilan, Taipei, Taiwan

July – Nov. 2024

NYCU -VLSI/SoC Design Automation Lab

Undergraduate Research Assistant (with Prof. Hung-Ming Chen)

Hsinchu, Taiwan

Sept. 2023 – June 2024

- Proposed an IR drop estimation method that includes comprehensive feature extraction and a convolution neural network and validated it with an open-source dataset; the method can make accurate predictions with an average error of 0.053mV without computational overhead

NYCU, ADAR Lab

Undergraduate Research Assistant (with Prof. Juinn-Dar Huang)

Hsinchu, Taiwan

Sept. 2022 – June 2023

- Refined the machine learning image processing procedure for polyp detection and improved the performance from 60% to 84%
- Designed a Convolution Neural Network for 3D brain vascular segmentation that achieved 95% accuracy
- Built an FPGA real-time fall detection and online alarm system with a pose estimation transformer accelerator

Publications

Yu-Tung Liu and Cunxi Yu. VeriTrace: Human-Like Temporal Exploration Completes Agentic Action Space. In IEEE International Conference on LLM-Aided Design, 2026. (Long oral: top 20%)

Zhan Song, **Yu-Tung Liu**, Chen Chen, Guoheng Sun, Jiaqi Yin, Chia-tung Ho, Ang Li, Haoxing Ren and Cunxi Yu (2025) TOPCELL: Topology Optimization of Standard Cell via LLMs. In Design Automation Conference, 2026 (DAC).

Chee-An Yu, **Yu-Tung Liu**, Yu-Hao Cheng, Shao-Yu Wu, Hung-Ming Chen, C-C Jay Kuo (2025). GIRD: A Green IR-Drop Estimation Method. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2025.

Yu-Tung Liu, Kuan-Chen Wang, Rong Chao, Sabato Marco Siniscalchi, Ping-Cheng Yeh, Yu Tsao (2025). MSEMGM: Surface Electromyography Denoising with a Mamba-based Efficient Network. In ICASSP 2025 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP).

Yu-Tung Liu, Yu-Hao Cheng, Shao-Yu Wu, Hung-Ming Chen (2024). CFIRSTNET: Comprehensive Features for Static IR Drop Estimation with Neural Network. In ICCAD 2024 ACM/IEEE International Conference on Computer-Aided Design (ICCAD).

Yu-Tung Liu, Kuan-Chen Wang, Kai-Chun Liu, Sheng-Yu Peng, Yu Tsao (2024). SDEMG: Score-Based Diffusion Model for Surface Electromyographic Signal Denoising. In ICASSP 2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 1736-1740). IEEE.

Honors

Dean's Fellowship, University of Maryland, College Park

Sept. 2025

Chu-Ming Medical Foundation: Chih-Tung Yin Electronics Laboratory Scholarship (NT\$30,000)

June 2024

1st Place Award, IEEE ICCAD 2023 CAD Contest (US\$2330)

Oct. 2023

Additional open-source bonus of US\$4000 sponsored by The OpenRoad Project.

People's Choice Award, NYCU Electrical Engineering Project (2x)

Jan., June 2023

Services

Reviewer - ACM Transactions on Design Automation of Electronic Systems (TODAES)

Session Chair - IEEE 2025 International Conference on Acoustics, Speech and Signal Processing (ICASSP)

Leadership and Extracurricular Activities

ECE Student Association | *Student Activities Director*

2022 – 2023

- Integrated planning of numerous student events to cultivate strong relationships among members