

Yi-Chun Liao

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EDUCATION

National Taiwan University (NTU)

B.Sc. in Computer Science and Information Engineering (CSIE)

• Overall GPA: 3.90/4.30, Last 60 GPA: 4.10/4.30

Taipei, Taiwan

Sep. 2021 – Dec. 2025

PUBLICATIONS

Yi-Chun Liao, Chieh-Lin Tsai, Yuan-Hao Chang, Camélia Slimani, Jalil Boukhobza, and Tei-Wei Kuo. “RETENTION: Resource-Efficient Tree-Based Ensemble Model Acceleration with Content-Addressable Memory,” Under review by *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 2025, doi: [10.48550/arXiv.2506.05994](https://doi.org/10.48550/arXiv.2506.05994)

Yi-Chun Liao, Chieh-Lin Tsai, Yuan-Hao Chang, Camélia Slimani, Jalil Boukhobza, and Tei-Wei Kuo. 2025. “Practicalizing Tree-Based Model Acceleration with CAM through Model Pruning and Data Placement Optimization.” In International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS '25), September 28-October 3, 2025, Taipei, Taiwan. ACM, New York, NY, USA, 2 pages. doi:[10.1145/3742873.3758342](https://doi.org/10.1145/3742873.3758342)

Hong-Wei Li, Ping-Ting Liu, Bo-Wei Lin, **Yi-Chun Liao**, and Yennun Huang. “IPMES: A Tool for Incremental TTP Detection Over the System Audit Event Stream,” *2024 54th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, Brisbane, Australia, 2024, pp. 265-273, doi:[10.1109/DSN58291.2024.00036](https://doi.org/10.1109/DSN58291.2024.00036).

HONORS

First Place of 2025 Bachelor Thesis Award

National Taiwan University

• Distinguished through a three-stage selection process and recognized as one of the top 2 in the CSIE Department, the best in the College of EECS, and one of the top 6 university-wide.

Taipei, Taiwan

Jun. 2025

Appier Enterprise Award

National Taiwan University

• Received the Most Potential Award from Appier in the departmental independent study exhibition.

Taipei, Taiwan

Jun. 2025

Dean's List Award

National Taiwan University

• Ranked 1/155 in the department for both Spring and Fall 2024 semesters.

Taipei, Taiwan

Sep. 2024

Irving T. Ho Memorial Scholarship

National Taiwan University

• Awarded to 3 students in the department for academic excellence.

Taipei, Taiwan

Sep. 2024

First Place of AUO Enterprise Award

MakeNTU 2024 (Makerthon)

• Designed an in-car RPG game for AUO smart windows to enhance the travel experience.
• Integrated gesture recognition models, speech-text transformation, OpenAI GPT assistant, FastAPI, Flutter, and Pygame.

Taipei, Taiwan

May 2024

RESEARCH EXPERIENCE

Research Intern

University of Notre Dame, Advisor: Prof. Xiaobo Sharon Hu

• Conduct independent research on realizing hyperdimensional computing in memory with crossbar and content-addressable memory through hardware/software co-design.
• Contribute to the extension of open-source content-addressable memory simulator CAMASim, focusing on data placement optimization with approaches proposed in first-authored paper RETENTION.

Indiana, United States

May 2025 – Present

Research Assistant & Summer Intern

Academia Sinica, Advisors: Prof. Yuan-Hao Chang and Prof. Tei-Wei Kuo

• Conduct independent research on accelerating tree-based ensemble models with content-addressable memory to achieve resource-efficient acceleration.
• Improved space efficiency by $4.35\times$ to $207.12\times$ with less than 3% accuracy degradation by introducing RETENTION. The first-authored paper is currently under review by IEEE TCAD.

Taipei, Taiwan

Jul. 2024 – Present

Research Assistant & Summer Intern

Academia Sinica, Advisor: Prof. Yennun Huang

Taipei, Taiwan

Jul. 2023 – Jun. 2024

- Collaborated on developing intrusion detection tool [IPMES](#) to detect incremental TTPs in system audit event streams. The co-authored paper was accepted by DSN 2024.
- Constructed an automatic system attack scenario generator independently to record hundreds of TTP attacks. The system was subsequently utilized for synthesizing system attack datasets.

TEACHING EXPERIENCE

Teaching Assistant

Computer Architecture, Lecturer: Prof. Chia-Lin Yang

Taipei, Taiwan

Sep. 2024 – Jan. 2025

- Supported the instruction of the Computer Architecture course at NTU, enrolled by over 100 students.
- Led weekly discussion sessions, designed and graded assignments, quizzes, and exams.
- Provided voluntary office hours, exceeding 10 hours per week during exam periods.

Teaching Assistant

APCS Camp

Taipei, Taiwan

Jul. 2022/23 – Aug. 2022/23

- Provided TA hours for over 300 C++ beginners during two-week crash courses.
- Adapted teaching strategies including programming problem solving and customized course reviews to meet the diverse needs and skill levels of students.

SKILLS

- **Language Proficiency:** English (Proficient, TOEFL iBT 112/120), Mandarin (Native), Japanese (Advanced)
- **Technical Skills:** C, C++, Python, Java, Git, Linux, JavaScript, PyTorch, scikit-learn
- **Soft Skills:** Leadership, Management, Communication, Critical Thinking, Resilient, Teamwork

NOTABLE COURSES

- **Mathematics, Theory, and Algorithm:** Calculus, Linear Algebra, Probability, Formal Languages and Automata Theory, Data Structure and Algorithm, Algorithm Design and analysis
- **Software Design:** Operating System, System Programming, Computer Network, Network Administration and System Administration, Web Programming
- **Hardware Design:** Computer Architecture, Digital System Design and Laboratory, Computer System Laboratory
- **Machine Learning:** Machine Learning, Applied Deep Learning, Foundations of Artificial Intelligence

ACTIVITIES

President

NTU CSIE Department Student Association

Taipei, Taiwan

Aug. 2023 – Jul. 2024

- Directed the student council of the CSIE department.
- Promoted student welfare and represented over 600 students in faculty meetings, contributing to departmental decisions.

Vice President

NTU EECS College Student Association

Taipei, Taiwan

Aug. 2023 – Jul. 2024

- Represented over 1500 students in college faculty meetings and helped shape student-related policies.

President

NTU Cancer Children Service Club

Taipei, Taiwan

Feb. 2023 – Jul. 2023

- Led a 50-member service club, overseeing budget allocation and organizing both volunteer service events and leisure activities for members.

Vice Coordinator

NTU CSIE Camp

Taipei, Taiwan

Feb. 2023 – Jul. 2023

- Organized a 6-day camp for over 100 high school students with a 50-member staff team.
- Designed activities to introduce students to the CSIE department and provide insights into university life.