

# 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 in-memory hyperdimensional computing with content-addressable memory through hardware/software co-design to achieve resource-efficient acceleration.  
• Conduct independent research on realizing in-memory retrieval for retrieval-augmented generation with content-addressable memory through hardware/software co-design to achieve resource-efficient acceleration.

Indiana, United States

May 2025 – Present

### Research Assistant

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

• Conduct independent research on accelerating tree-based ensemble model inference 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 TCAD.

Taipei, Taiwan

Apr. 2024 – Present

**Research Assistant**  
*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 published in DSN 2024.
- Constructed an automatic system attack scenario generator independently to record hundreds of TTP attacks. The system is 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.

## EXTRACURRICULAR 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, managing budget allocation and arranging educational and recreational activities.
- Worked with Childhood Cancer Foundation R.O.C., organizing voluntary services to reduce the burden of parents.

**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.

## SKILLS

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