

# Yi-Chun (Kevin) Liao

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## EDUCATION

### National Taiwan University (NTU)

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

- Overall GPA: 3.89/4.3 (3.7/4.0)

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)

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

*Department of Computer Science and Information Engineering, 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 Assistant & Summer Intern

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

- Conduct independent research on realizing best-match functionality across multiple content-addressable memory tiles to enhance implementation scalability.

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 CODES+ISSS 2025 journal track.

Taipei, Taiwan

Jul. 2024 – Jun. 2025

### Research Assistant & Summer Intern

*Academia Sinica, Advisor: Prof. Yennun Huang*

- 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.

Taipei, Taiwan

Jul. 2023 – Jun. 2024

# TEACHING EXPERIENCE

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**Teaching Assistant**  
*Computer Architecture, Lecturer: Prof. Chia-Lin Yang*

- 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.

Taipei, Taiwan  
Sep. 2024 – Jan. 2025

**Teaching Assistant**  
*APCS Camp*

- 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.

Taipei, Taiwan  
Jul. 2022/23 – Aug. 2022/23

# SKILLS

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

# NOTABLE COURSES

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- 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

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**President**  
*NTU CSIE Department Student Association*

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

Taipei, Taiwan  
Aug. 2023 – Jul. 2024

**Vice President**  
*NTU EECS College Student Association*

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

Taipei, Taiwan  
Aug. 2023 – Jul. 2024

**President**  
*NTU Cancer Children Service Club*

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

Taipei, Taiwan  
Feb. 2023 – Jul. 2023

**Vice Coordinator**  
*NTU CSIE Camp*

- 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.

Taipei, Taiwan  
Feb. 2023 – Jul. 2023