Cheng-Yi Lee

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RESEARCH INTERESTS

Trustworthy AI, Multimedia Forensics, Information Security

EDUCATION

Kanazawa University, Ishikawa, Japan — Apr 2021 — Mar 2024
Master of Science in Electrical Engineering Computer Science (Double-Degree Program) — Cumulative GPA: 4.00/4.0
Thesis Title: Hierarchical Encryption with Various Functionalities
Advisor: Dr. Masahiro Mambo

National Chengchi University, Taipei, Taiwan — Feb 2020 — Mar 2023
Master of Science in Computer Science — Cumulative GPA: 3.90/4.0
Thesis Title: Privacy-preserving bidirectional keyword search over encrypted data for cloud-assisted IIoT
Advisor: Dr. Raylin Tso

Chang Gung University, Taoyuan, Taiwan — Sep 2016 — Jan 2020
Bachelor of Science in Information Management — Cumulative GPA: 3.97/4.0

WORK EXPERIENCE

Research Center for Information Technology Innovation, Academia Sinica — Taipei, Taiwan
Research Assistant — Jul 2025 – Present
Advisor: Dr. Jun-Cheng Chen (in collaboration with Dr. Chun-Shien Lu)

- Designed robust watermarking methods for generative content to protect intellectual property in AI-generated content (AIGC).

Institute of Information Science, Academia Sinica — Taipei, Taiwan
Research Assistant — Apr 2023 – Jun 2024
Research Intern — Jun 2021 – Jan 2022
Advisor: Dr. Chun-Shien Lu (in collaboration with Dr. Chia-Mu Yu.)

- Developed robust watermarking schemes embedded in deep learning models to ensure model ownership verification.
- Investigated backdoor attacks and defenses in vision and sequence models.
- Studied adversarial robustness, including adversarial examples and model defense mechanisms.

PUBLICATIONS

Conference paper

- **Cheng-Yi Lee**, Yu-Hsuan Chiang, Zhong-You Wu, Chia-Mu Yu, Chun-Shien Lu, "BadVim: Unveiling Backdoor Threats in Visual State Space Model," 28th European Conference on Artificial Intelligence (ECAI), 2025.
- **Cheng-Yi Lee***, Ching-Chia Kao*, Cheng-Han Yeh, Chun-Shien Lu, Chia-Mu Yu, Chu-Song Chen, "Defending Against Repetitive Backdoor Attack on Semi-Supervised Learning through Lens of Rate-Distortion-Perception Trade-off," IEEE Winter Conference on Applications of Computer Vision (WACV), 2025. (* Equal Contribution)
- Ching-Chia Kao, **Cheng-Yi Lee**, Chun-Shien Lu, Chia-Mu Yu, Chu-Song Chen, "On The Higher Moment Disparity of Backdoor Attacks," IEEE Conference on Multimedia Expo (ICME), 2024. **[Oral]**
- **Cheng-Yi Lee**, Cheng-Chang Tsai, Ching-Chia Kao, Chun-Shien Lu, Chia-Mu Yu, "Defending against Clean-Image Backdoor Attack in Multi-Label Classification," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2024. **[Oral]**

Journal paper

- **Cheng-Yi Lee**, Zi-Yuan Liu, Masahiro Mambo, Raylin Tso, "Privacy-enhanced Data Sharing Systems from Hierarchical ID-based Puncturable Functional Encryption with Inner Product Predicates," IET Information Security, September, 2024.
- **Cheng-Yi Lee***, Zi-Yuan Liu*, Raylin Tso, Yi-Fan Tseng, "Privacy-preserving bidirectional keyword search over encrypted data for cloud-assisted IIoT," Journal of Systems Architecture, Vol. 130, July, 2022. (* Equal Contribution)

AWARDS

Dean List, College of Management, Chang Gung University — Taoyuan, Taiwan
Class of 2020, for Outstanding Academic Performance — Jan 2020

CERTIFICATES

Certified Ethical Hacker (CEH) — EC-Council
Certification Number: ECC25133919874 — Dec 2017 — Dec 2020

OTHER EXPERIENCES

Teaching Assistant — National Chengchi University, Taiwan
Artificial Intelligence and Its Applications to Information Security — Feb 2021 — Jun 2021

- Instructed lessons on privacy issues with the guidance of Dr. Peter Shaojui Wang.
- Graded assignments for 25 students.

SELECTED COURSES

Master's Courses

- Deep Learning: Fundamentals and Applications
- Natural Language Processing
- Image Processing
- Cryptographic Protocol Design and Analysis

Bachelor's Courses

- Data Mining
- Digital Forensics
- Network Security
- Operating System

LANGUAGE

TOEFL (Academic): 84 (overall score)
Listening: 24 — Reading: 21 — Speaking: 20 — Writing: 19 — Feb 2025

TECHINCAL SKILLS

- **Programming:** Python, Java, C++, R,
- **Developer Tools:** LINUX, Git, Docker
- **Library:** PyTorch, OpenCV, Charm-crypto, PBC (Pairing-Based Crypto)

REFERENCES

Prof. Chun-Shien Lu
Research Fellow, Institute of Information Science, Academia Sinica, Taipei, Taiwan
E-mail: lcs@iis.sinica.edu.tw
Scholar Profiles: Personal Page — Google Scholar

Prof. Chia-Mu Yu
Associate Professor, Department of Electronics and Electrical Engineering, National Yang Ming Chiao Tung University (NYCU), Hsinchu, Taiwan
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Prof. Raylin Tso
Distinguished Professor, Department of Computer Science, National Chengchi University (NCCU), Taipei, Taiwan
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