Hsun-Yu Kuo

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Research Interest

Machine Learning
- *Data-Centric AI; Reinforcement Learning; Extrapolation; Robustness; Causality; AI for Social Good*

Education

Swiss Federal Institute of Technology (EPFL)   **Lausanne, Switzerland**
M.Sc. in Computer Science (Specialization in Computer Science Theory)   *Sept. 2024 – Present*
- **Coursework**: Machine Learning; Advanced Algorithms; Causal Thinking; Mathematics of Data: From Theory to Computation; Markov Chains and Algorithmic Applications; Deep Learning; Reinforcement Learning; Modern Natural Language Processing
- Completed mandatory military service (Mar. 2025 – Jun. 2025)

National Taiwan University   **Taipei, Taiwan**
M.Sc. in Data Science   *Feb. 2023 – June 2024*
- Paused studies after June 2024 to pursue a master's degree at EPFL
- **Coursework**: Machine Learning; Natural Language Processing; Statistical Foundations of Data Science (I); Computational Methods for Data Science; Big Data Systems

National Taiwan University of Science and Technology   **Taipei, Taiwan**
B.Sc. in Applied Science and Technology, Major in Computer Science   *Sept. 2018 – June 2022*
- Graduated 1st in the program (2022)
- **Coursework**: Statistics (I); Probability and Statistics; Discrete Mathematics; Linear Algebra; Calculus (I); Algorithms; Data Structures; Database Systems; Operating Systems; Digital Logic Design; Computer Networks; Webpage Development; Object-Oriented Programming; Introduction to Computers; Value of AI and Data; Introduction to Fuzzy Systems; Machine Learning Foundations

Research and Industry Experience

MLO Lab, EPFL   **Lausanne, Switzerland**
Semester Project Student   *Sept. 2025 – Present*
- **Advisors**: Martin Jaggi; El Mahdi Chayti
- Exploring the Halting Problem in recurrent structures (looped transformers).

Robust Machine Learning Group, Max Planck Institute for Intelligent Systems   **Tübingen, Germany**
Research Intern   *June 2025 – Aug. 2025*
- **Advisors**: Wieland Brendel; Patrik Reizinger
- Exploring out-of-distribution generalisation and extrapolation.

CKIP Lab, Academia Sinica & IR Lab, National Taiwan University   **Taipei, Taiwan**
Research Assistant   *Feb. 2023 – June 2024*
- **Advisors**: Wei-Yun Ma; Pu-Jen Cheng
- Data weighting for synthetic data to better match real-data distributions.

Industrial Technology Research Institute   **Taipei, Taiwan**
Intern   *July 2021 – Sept. 2021*
- Engineered short- and long-term load forecasting methods for Taiwan Power Company.

Wireless System Lab, National Taiwan University of Science and Technology   **Taipei, Taiwan**
Research Assistant   *Sept. 2019 – Jan. 2021*
- **Advisor**: Chin-Ya Huang
- Devised an MTC scheme for dynamic CBRS channel allocation.
- Implemented RLNC and Galois field arithmetic in P4; simulated with ONOS/Mininet.

Papers

[P1] **Hsun-Yu Kuo**, El Mahdi Chayti, Patrik Reizinger, Martin Jaggi & Wieland Brendel, "When to Stop and Data Order Matter: On Extrapolation in Looped Transformers". *Working paper* (in progress)

[P2] **Hsun-Yu Kuo**, Yin-Hsiang Liao, Yu-Chieh Chao, Wei-Yun Ma & Pu-Jen Cheng, "Not All LLM-Generated Data Are Equal: Rethinking Data Weighting in Text Classification". In *Proceedings of the 13th International Conference on Learning Representations* (ICLR 2025) (**Spotlight**, top 5.1%) 📄

[P3] **Hsun-Yu Kuo**, Szu-Yu Liu, Chin-Ya Huang, Yu-Chi Chen & Meng-Hua Xie, "Reliable Data Transmission through Private CBRS Networks". In *Preprint* (2023) 📄

[P4] **Hsun-Yu Kuo**, T.-W. Liu, Y.-P. Huang, *et al.*, "Differential Diagnostic Value of Machine Learning–Based Models for Embolic Stroke". *Clinical and Applied Thrombosis/Hemostasis* (2023)

[P5] Hsuan-Min Wang, Yo-Ping Huang, **Hsun-Yu Kuo**, *et al.*, "The modified spatial context memory test for assessing cognitive aging in middle-aged and older adults". *Neuroscience Research* (2019)

Teaching Experience

Teaching Assistant, National Taiwan University **Taipei, Taiwan**
System Programming *Sept. 2023 – Jan. 2024*
- Led TA sessions and supported 100+ students.
- Designed a context-switch simulation using non-local jumps and signals for a course assignment.

Honors and Awards

Phi Tau Phi Scholastic Honor Society of the Republic of China **Taiwan**
Honorary Membership *2022*

Mengjia Longshan Temple Scholarship **Taiwan**
Academic Excellence Scholarship (Scholarship for Excellent Academic Performance) *2021*

Academic Excellence Award **Taiwan**
Seven consecutive awards for excellent academic performance *2018–2022*

Kanagawa International Science Forum **Kanagawa, Japan**
1st Place (Outstanding Poster Presentation Award) – Engineering Category *2017*

National Skills Competition **Taiwan**
1st Place (Golden Award) – Software Applications Development *2016*

Professional Service

Conference Reviewer
ICLR 2026

Volunteer
SIGIR 2023