

Hsun-Yu Kuo

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Education

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- École Polytechnique Fédérale de Lausanne (EPFL)**, MSc in Computer Science Sept. 2024 — Now
- **Coursework:** Machine Learning, Advanced Algorithms, Causal Thinking
- National Taiwan University**, MSc in Data Science Feb. 2023 — June 2024
- Paused studies after June 2024 to pursue a master's degree at EPFL.
 - GPA: 4.25/4.3 (as of June 2024)
 - **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**, Bachelor's Degree Sept. 2018 — June. 2022
- Program of Applied Science and Technology, Major in Computer Science
- GPA: 4.10/4.30
 - Graduated in 1st place (2022), 7 consecutive Academic Excellence Awards (2018-2022)
 - **Coursework:** Statistics(I), Probability and Statistics, Discrete Mathematics, Linear Algebra, Calculus(I), Algorithms, Data Structures, Database Systems, Operating Systems, Digital Logic Design, Introduction to Computer Networks, Webpages Development, Object-oriented Programming, Computer Programming, Introduction to Computers, Value of AI and Data, Introduction to Fuzzy Systems, Machine Learning Foundations

Papers

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- [1] **Hsun-Yu Kuo**, Yin-Hsiang Liao, Yu-Chieh Chao, Wei-Yun Ma and Pu-Jen Cheng. **Not All LLM-Generated Data Are Equal: Rethinking Data Weighting in Text Classification**, ICLR, 2025. Spotlight (top 5.1%).
- [2] **Hsun-Yu Kuo**, Szu-Yu Liu, Chin-Ya Huang, Yu-Chi Chen and Meng-Hua Xie. **Reliable Data Transmission through Private CBRN Networks**, arXiv, 2023.
- [3] **Hsun-Yu Kuo**, Liu T-W, Huang Y-P, et al. **Differential Diagnostic Value of Machine Learning-Based Models for Embolic Stroke**, Clinical and Applied Thrombosis/Hemostasis, 2023.
- [4] Hsuan-Min Wang, Yo-Ping Huang, **Hsun-Yu Kuo**, et al. **A Normative Study of Modified Spatial Context Memory Test in Middle and Older Individuals**, bioRxiv, 2019.

Teaching Experience

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- Teaching Assistant**, System Programming, National Taiwan University Sept. 2023 — Jan. 2024
- Designed and implemented a simulation of a context switch system utilizing non-local jumps and signals in a class assignment
 - Conducted TA sessions, providing guidance and support to 100+ students on academic coursework

Experience

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- Research Assistant**, CKIP Lab, Academia Sinica & IR Lab, National Taiwan University, Taipei, Taiwan Feb. 2023 – June 2024
- Advisor: Prof. Wei-Yun Ma and Prof. Pu-Jen Cheng
 - Retrieval-Augmented Language Model for Knowledge Graph Completion
 - Innovated a prompt-based learning and knowledge-augmented approach for knowledge graph completion, enhancing the MRR from 0.30 to 0.39
 - Prompt-based Learning for Few-shots Crime Prediction
 - Engineered a prompt-based learning technique for few-shot multi-class labeling, increasing F1 Score from 76% to 80%
 - Online Data Augmentation for Generalizing Intent Classification
 - Designed an online data augmentation framework for intent classification, increasing micro accuracy from

67% to 72% and macro accuracy from 62% to 67% on actual customer data

Internship, Industrial Technology Research Institute, Taipei, Taiwan July. 2021 — Sept. 2021

- Engineered both short-term and long-term load forecasting methods for Taiwan Power Company

Big Data Internship, Taipei Rapid Transit Corporation, Taipei, Taiwan July. 2021 — Sept. 2021

- Engineered a flow prediction system using historical station data and weather forecasts; optimized database structure & data pipeline for efficient data restoration and streamlined out-station transfer calculations

Research Assistant, Wireless System Lab, National Taiwan University of Science and Technology, Taipei, Taiwan Sept. 2019 — Jan. 2021

- Advisor: Prof. Chin-Ya Huang
- Reliable Data Transmission through Private CBRS Networks
 - Devised the Maximum Transmission Continuity (MTC) scheme for dynamic allocation of available CBRS channels, enhancing data transmission continuity for IoT devices
- Random Linear Network Coding on P4
 - Engineered Galois Field arithmetic and random linear network coding algorithms for P4, simulating their integration with ONOS in a Mininet environment

Selected Projects

Few-Shot Classification of Regulations for Unlawful Ads Based on Govt May. 2023— Jun. 2023

- Optimized language models to achieve a top-ranking macro F1 score of 72%, securing 1st place out of 111 participants in the NTU NLP course leaderboard

Differential Diagnostic Value of ML-Based Models for Embolic Stroke Jan. 2023— Dec. 2023

- Developed CNN models applying data augmentation (including flipping, contrast) to distinguish between CAT and AF-related strokes using diffusion-weighted imaging (DWI) data

Normative Study of Modified SCMT in Middle-Aged and Older Individuals Jan. 2023— Dec. 2023

- Developed a 3D game-based modified spatial context memory test (SCMT) using Unity to diagnose amnesic mild cognitive impairment

Custom EEG with Neural Networks at National High School Science Fair Jan. 2017— Jun. 2017

- Analyzed brain waves with electroencephalography using deep learning and wavelet transform

Pneumatic Silicone Assistive Device for Hand Rehab. at Taiwan Int'l Science Fair Sept. 2016 — Jan. 2017

- Designed an artificial muscle assistive device to improve hand muscle mobility and devised an algorithm for its control using muscle sensors

Awards

- Phi Tau Phi Scholastic Honor Society of the Republic of China Honorary Membership (2022)
- 1st Place (Outstanding Poster Presentation Award) - Engineering Category, Kanagawa Int'l Science Forum, 2017
- 1st Place (Golden Award) - IT Software Solutions for Business, National Skills Competition, Taiwan, 2016

Skills

Languages: C/C++ , Python, Java, JavaScript, HTML, CSS, Git, C#, SQL

Machine Learning Packages and Frameworks: Pytorch, TensorFlow, Huggingface, Ray

Software/ Hardware: Arduino, Android Studio, Xamarin, .NET, MySQL, MSSQL, Unity