Hsun-Yu Kuo

hsun-yu.kuo@epfl.ch | linkedin.com/in/hsun-yu-kuo

Education

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 Program of Applied Science and Technology, Major in Computer Science — Sept. 2018 — June. 2022

- 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

Experience

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

Papers

[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 CBRS 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

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

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

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 amnestic 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

Technologies

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