Ko-Tik Lee

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SUMMARY

Machine Learning Engineer with 3+ years of experience delivering cutting-edge AI solutions. Expertise in Speech Processing and Large Language Models, with a focus on optimizing performance and building scalable pipelines. Open to expanding skill sets into backend development and other related domains to contribute to innovative AI projects.

EXPERIENCES

Taiwan AI Labs — Taipei

Machine Learning Engineer — *Aug. 2021 - Nov. 2024*

- **Research & Development**
  - Led the development of state-of-the-art speaker diarization for Yating Transcriber, outperforming two key competitors in real-world applications and achieving top results on academic benchmarks.
  - Reduced Word Error Rate (WER) by 20% in specialized Automatic Speech Recognition (ASR) models using self-supervised learning, providing transcription services to financial and medical sectors.
  - Enabled rapid deployment of multilingual Text-to-Speech (TTS) and Voice Cloning models for video translation and public broadcasting with minimal data (5 minutes) or zero-shot capabilities, enhancing content accessibility and reach.
  - Improved customer service chatbot user experience by engineering a Retrieval-Augmented Generation (RAG) pipeline that enhanced retrieval accuracy by 25%, while maintaining a balance between accuracy and speed.
  - Architected a novel pipeline leveraging Multimodal LLMs, RAG, and custom modules for efficient summarization and retrieval from long-form video content (1hr+).
- **Deployment & Production**
  - Optimized ML models using ONNX for asynchronous and multi-connection support. Achieved 3x faster inference through performance profiling and memory usage optimization, validated via comprehensive QA.
  - Designed and deployed scalable ML pipelines on Kubernetes with FastAPI, Celery, and Prefect, managing up to 10 parallel pods with automated deployments via GitLab CI/CD.
- **Collaboration & Teamwork**
  - Led technical projects, collaborating with 15+ colleagues and mentoring 4 interns, fostering knowledge sharing and team growth.
  - Facilitated cross-team collaboration and efficiency by developing and sharing tools, including a data pipeline to process 20,000+ hours of audio data and automated server health checks.

National Taiwan University — Taipei

Teaching Assistant (*Machine Learning, Prof. Hung-yi Lee*) — *Mar. 2021 - Jul. 2021*

- Designed two assignments on BERT and Explainable AI for a large class of over 1,000 students.

EDUCATION

National Taiwan University — Taipei

M.S. in Electrical Engineering, EECS — *Sep. 2022 - Jan. 2024*

- Advisor: Hung-yi Lee, Speech Processing and Machine Learning Lab
- Overall GPA: 4.26/4.3

B.S. in Electrical Engineering, EECS — *Sep. 2018 - Jun. 2022*

- Overall GPA: 4.06/4.3

Hong Kong Diploma of Secondary Education (HKDSE) — Hong Kong

- Best 6: 37/42 (5* in Chinese, 5 in English) — *Jul. 2017*

AWARDS

1st Place in Cadence Data Structure and Programming Contest (in C++) [Github] — *Nov. 2020*

Presidential Award (Dean's List, award to top 5% in class) — *Apr. 2019*

PUBLICATIONS

Improved Speaker Diarization Based on Speech Foundation Models (Master's thesis) [Paper] — *Jan. 2024*

SUPERB: Speech processing Universal PERformance Benchmark (Co-author) [Paper] — *May. 2021*

SKILLS

Programming Languages	Python (advanced), C++, Matlab, SQL
Frameworks and Tools	PyTorch (advanced), Docker, Git, Jira, Kubernetes
Technical Skills	Computer Vision, Data Analysis, Large Language Models, Speech Processing
Languages	Cantonese (native), Mandarin, English