

Gabriel Chen

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4 years of **Machine Learning Engineer** experience, led infrared face recognition project, delivered high-impact product.

SKILLS

NLP | LLM | Python | PyTorch | TensorFlow | Ubuntu | GitHub | SQL (MySQL) | Computer Vision

WORK EXPERIENCE

Egis Technology

2019 May – 2022 June

Machine Learning Engineer (Infrared Face Recognition Project with **Python, Pytorch**)

- **Project lead since October 2020. The product has been in mass production since October 2021. This product drove up to \$5 million in revenue and fostered the following partnership with the client.**
- Analyzed root causes of prediction errors, and managed data collection from in-house and outsourced teams
- Fine-tuned face recognition model (**ArcFace**) with a carefully self-crafted dataset with **distributed computing**
- Proposed and implemented **data pipeline** refinements to reduce 10% false rejection rate
- Reduced 5% false rejection rate using **data augmentation** with simulated sunlight pattern
- Proposed and implemented an **ensemble image classification** Anti-Spoofing method to reduce the spoofing acceptance rate to lower than 1% while maintaining the low false rejection rate
- Created a **data augmentation** for mouth/nose detection with minimum training data for effective mask detection during the pandemic era

Machine Learning Engineer (Edge AI Chip Development Project)

- Evaluated and redesigned the architecture of models (segmentation, super-resolution) using **Pytorch** to ensure the peak memory usage and FLOPS are compatible with the in-house edge AI integrated circuit design

Theia Tech

2018 Oct – 2019 April

Machine Learning Engineer (Glasses-free 3D Display Project)

- Captured the location of on-screen display text with the **object detection** method to avoid abnormal 3D effects on text and generate a better user experience

PROJECTS

Clickbait Spoiling: Aimed to save users' time by spoiling tedious articles with sensational titles. [GitHub](#)

- Devised and implemented a comprehensive pipeline to counter various clickbait types, boosting performance by 9%
- Utilized **Hugging Face tokenization** and **transformer** models (**RoBERTa, T5**) on Kaggle cloud and **SageMaker**
- Fine-tuned larger models with **LoRA**, further improving performance by 15% (meteor score).
- Employed GPT-3.5 turbo API as project baseline.

Automatic Resume Tailoring: [GitHub](#)

- Adding support for the local LLM options (Mistral with Hugging Face or Ollama) and speeding up the pipeline by 5%
- Optimizing performance with the feedback loop.
- Parsing pdf file by sections robustly with meteor score, BERT embedding and LLM model.
- Prompt engineering for LLM to perform the best in resume refinement work with carefully crafted prompts
- Restricting output to structured JSON format with GBNF grammar

ChatGPT clone chatbot: Deployed ChatGPT-like app with OpenAI API and Streamlit on AWS EC2. [Link](#)

EDUCATION

Master of Electrical and Computer Engineering, University of Waterloo (3.75/4)

2022 Sep – 2023 Dec

- Used-Car Database Project: Designed the complete ER diagram from scratch and used **SQL (MySQL)** to implement

Master of Electrical Engineering, National Tsing Hua University (NTHU) (3.84/4.3)

2015 Sep – 2018 Feb

- Publication as the second author: "Recognition from Hand Cameras: A Revisit with Deep Learning", [ECCV 2016](#)