BUI DUC THANH

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EDUCATION

National University of Singapore **Aug 2021 - Expected May 2025**
Bachelor of Engineering, Computer Engineering, Minors in Data Engineering

- Cumulative Average Point: 4.66/5.00 (First Class Honours)

TECHNICAL SKILLS

Programming Languages	Python, C++, Java
AI/Machine Learning	Pytorch, AWS SageMaker, Optuna, XGBoost, Scikit-learn, MLflow, HuggingFace
Cloud Service	Amazon Web Services
Others	Git, Docker, Gradio, Streamlit, FastAPI, Linux, SQL

PROFESSIONAL CERTIFICATES

- AWS Certified Machine Learning - Specialty *(Link)*
- AWS Certified Cloud Practitioner *(Link)*

EXPERIENCE

Machine Learning Engineer Intern, ParallelChain Lab **Singapore, Jun 2024 - Oct 2024**

- Researched the latest TTS, voice conversion techniques, and speech datasets to enhance our e-KYC application with a voice anti-spoofing feature, and fine-tuned SOTA speech models (Wav2Vec2, Whisper).
- Proposed and implemented an robust audio augmentation pipeline for training process with ResNet34 backbone, boosting performance by 24% and securing 2nd place in the ASVspoof5 competition.
- Co-authored a technical paper about voice antispoofing techniques accepted at the ASVspoof5 Workshop, Interspeech 2024. *(Link)*
- Developed a voice-based gender classification model with 98.26% accuracy.

Machine Learning Engineer Intern, Sabic Asia Pacific Pte Ltd **Singapore, Jan 2024 - Jun 2024**

- Conducted analysis of historical text data from internal ticketing system databases, deriving key insights to improve search ability.
- Implemented an end-to-end ML pipeline for automatic ticket suggestion based on text descriptions, achieving 0.86 F1 score and significantly reducing manual selection errors.
- Built an application that extracts data from Quality Management PDFs to Excel using fine-tuned OCR engine, eliminating manual processing and saving 10 man-hours/month with 100% accuracy.

AI Engineer Intern, Amaris.AI **Singapore, Jun 2023 - Aug 2023**

- Assisted in implementing a retrieval augmented generation compliance checking system, by using vector databases and open-source large language models (Llama2-13b, ...).
- Created PDF parser software to extract and organize text, yielding clean, high-quality input data for better embeddings and enhanced RAG system performance by 18%.
- Engaged in continuous research and testing of cutting-edge open-source models and APIs, fostered effective communication with various teams to ensure seamless system integration.

PROJECTS

English-Vietnamese Neural Machine Translation - Transformer from scratch *(Github)*

- Implemented Transformer architecture with PyTorch from scratch based on "Attention is all you need" paper.
- Experimented and trained the model with IWSLT'15 English-Vietnamese dataset containing 133K sentence pair, achieving BLEU score of 27.6 on validation set.

Distracted Driver Detection *(Github)*: Built a model to detect distracted behaviours of drivers while driving (Best Project Award for CS3244 Machine Learning in the 22nd NUS School of Computing Term Project Showcase)

- Fine-tuned and conducted experiments on several pre-trained models, including VGG16 and InceptionV3 with Tensorflow on Distracted Driver Dataset, culminating in a noteworthy 0.92 accuracy rate.
- Performed hand segmentation on original dataset to train a sub-model and assisted in ensemble process to increase final model's performance.

FastSpeech2 Implementation *(Github)*

- Implemented transformer-based Text-to-Speech architecture FastSpeech2 (paper link)

COMPETITIONS

Tokka Labs Quantitative Challenge 2024 - Kaggle competition Top 6 - $1000USD prize

- Analyzed historical market data of 10 cryptocurrencies, and developed a machine learning pipeline using LightGBM to forecast 10-minute log returns.