Nguyen Trong Phan

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EDUCATION

Rice University — Houston, USA
Bachelor of Computing in Computer Science — *Jan 2025 - June 2025*
- **Courses**: Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Distributed Systems.

Nanyang Technological University — Singapore, Singapore
Bachelor of Computing in Computer Science with Minor in Risk Analytics — *June 2022 - June 2026*
- **Awards**: ASEAN Scholarship for Undergraduate.
- **Courseworks**: Investment Management with Python and Machine Learning, Deep Learning Specialization, Google Professional Data Analytics, Excel Skills for Data Analytics and Visualization, Visual & Predictive Technique.

EXPERIENCE

Algorithm Engineer Intern — May 2024 – Dec 2024
TikTok (ByteDance) — *Singapore*
- Developed and optimized algorithmic solutions for product profiling by creating a new algorithm that utilizes an embedding model for candidate retrieval. This was further enhanced by fine-tuning with a Siamese network using triplet loss, achieving a 95% accuracy rate for the top 30 retrieved candidates.
- Integrated and deployed the attribute normalization service across the entire attribute service, which involves constructing thrift files and connecting the client and server to test performance and latency. This integration achieved 87% accuracy and improved the service's Queries Per Second (QPS) by 200%.
- Developed a pipeline leveraging the Multimodal Large Language Model (InternVL2) to align product categories, properties, and values across diverse e-commerce platforms, ensuring consistency in business data. This achieved 95% alignment accuracy and 0.94 F1 score, demonstrating high precision and recall in product information matching

Machine Learning Intern — September 2023 – January 2024
Thales Solutions Asia — *Singapore*
- Conducted object detection training using YOLOX models on a custom dataset to enhance the SMRT system across various scenarios, reducing gate passing time by 20%.
- Executed training on YOLOv models and data conversion between CocoJSON and TXT, achieved 72% accuracy.
- Developed scripts for continuous model testing on videos within 48 hours, including video input, frame extraction at a customized FPS rate, timestamp marking, YOLO object detection, and result logging in a timestamped TXT file.

AI & ML Intern — May 2023 – August 2023
A*STAR - Agency for Science, Technology and Research — *Singapore*
- Researched project "Question Tagging using Knowledge and Causal Inference" under guidance of Dr. Zhou Nina.
- Analyzed and evaluated Language Models (LLMs), including LLaMa, Alpaca-Lora, and RoBERTa, by conducting local loading and testing with personal data, which involved data cleaning and preprocessing.
- Analyzed text sentiment using Sentence-Transformer, map questions to outcomes and topics achieved 86% accuracy.

Research Assistant — March 2023 – May 2023
Nanyang Technological University — *Singapore*
- Conducted onsite traffic data collection utilizing manual counting and video surveillance methodologies.
- Processed, analyzed, and annotated over 2000 images extracted from video footage in Pick-Up and Drop-Off zones.
- Enhanced the YOLOv5 architecture to output object bounding boxes and re-identification attributes by refactoring loss functions, data loaders, network configurations of YOLOv5, achieve over 80% accuracy with 0.8 IoU threshold.

PROJECTS

Facial Recognition Attendance System with Real-Time Database Integration
- Developed a robust facial recognition algorithm to identify and verify preloaded students achieved 95% accuracy.
- Integrated with a real-time database ensured instant storage of attendance records, reducing manual errors by 80%.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL, JavaScript, TypeScript, R, HTML/CSS, PowerBI, PowerQuery, Excel
Frameworks: PyTorch, Scikit-learn, TensorFlow, Keras, Streamlit, LangChain, NextJS, NodeJS, ExpressJS, ReactJS
Developer Tools: Git, Docker, Google Cloud Platform, PyCharm, IntelliJ, AWS, Supabase, MongoDB, Postgresql
Libraries: Pandas, NumPy, Matplotlib, Seaborn, pyfolio, backtrader, yfinance, altair, SciPy, Flask, FastAPI, OpenCV