Ng Zhili

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EXPERIENCE

Data Scientist, CARRO **Jan 2022 – Present**

- Built scripts for splitting datasets with multi-label stratification, yielding improvement of model accuracy by 20%.

AI Engineer Intern, DSTA **Dec 2021 – Jan 2022**

- Research and benchmark scene segmentation models on real-time videos using OpenMMLab and PixelLib toolkits.

Data Scientist Intern, CARRO **May 2021 – Dec 2021**

- Co-lead of computer vision team of 5 and coordinated with external stakeholders to ensure key deliverables are met.
- Designed and built python scripts for automated data ingestion by using AWS SageMaker and deploying AWS Lambda functions for conversion of segmentation and bounding box instances.
- Built automatic label verification pipeline of instance segmentation using custom Mask RCNN model (pixel-wise mask IoU comparison) to flag out annotation errors, minimizing label verification costs and time by 50%.
- Built and hosted web app for the hiring of overseas annotators and managed labelling pipeline of over 20 overseas annotators via the Supervisely platform, cutting image labelling costs up to 74% per image.
- Reduced data preparation time up to 70% by training image classification models to filter over 100,000 images.
- Trained object detection models for detection of vehicle damages and achieved 70% overall mAP across classes.
- Built image processing & automatic wrap perspective algorithms from scratch (improved OCR accuracy by 30%).
- Implemented pre-trained OCR models for text recognition of car license plates and achieved CER up to 10%.
- Conducted signal pre-processing, truncation, and unsupervised classification of audio for acoustic analysis project.
- Carried out exploratory data analysis, data preprocessing, cleaning, imputation, transformation, and augmentation.

EDUCATION

National University of Singapore (NUS) **Aug 2019 – May 2023**

- BEng Mechanical Engineering (Robotics Specialization) with minor in Computer Science (CAP: 4.72/5.0).
- University Scholars Programme (USP), USP Scholarship (Jixun & Serene Scholarship), Char Yong Scholarship.
- First Class Honors (Highest Distinction), Dean's List (Top 5% of cohort), USP Honor Roll.
- NUS InnoVenture Case Competition 2020 - Best Pitch by Audience Choice Award (Grab PMD)
- Coursework: Data Structures & Algorithms, Machine Learning, Computational Intelligence, AI Projects, Quantitative Reasoning, Multivariate Calculus, Discrete Mathematics, Linear Algebra, Differential Equations, Systems Thinking.
- Extracurriculars: Technology Analyst & Algorithmic Trading Researcher – NUS Fintech Society, Deputy Director of Sponsorships – NUS Entrepreneurship Society, Mechanical Engineer – NUS Robomasters & NUS Bumblebee.

PROJECTS

TelePet Telegram Bot, HacknRoll 2022 | **Demo: t.me/TelePet_bot** **Jan 2022 – Jan 2022**

- Utilized OpenCV and Google Drive API to develop a python telegram bot that detects and replace faces on media content.

InsurTech, NUS Fintech Society | **Demo: insurtech-cv.herokuapp** **Sep 2021 – Dec 2021**

- Trained and deployed YOLOv5 model on flask web application for automatic car damage assessment with damage repair costs estimation as featured in Singapore Fintech Festival (SFF) 2021.

AlphaSign | **Demo: github.io/AlphaSign** **Sep 2021 – Oct 2021**

- Built and deployed a Tensorflow.js React web application that recognizes American Sign Language (ASL) in real-time via client-side inference using Tensorflow objection detection models and WebGL backend.

SignPose | **Code: github/Signpose** **Sep 2021 – Oct 2021**

- Trained and deployed Keras LSTM Model on Flask web app that achieves 90% accuracy for real-time sequential classification of dynamic sign language using Google's MediaPipe pose estimation models.

Stock Dashboard | **Demo: stock-dashboards.herokuapp** **July 2021 – Aug 2021**

- Built and deployed a Streamlit web app to view real-time US stock prices, charts, news and StockTwits discussions.

DJI RoboMasters Robotics Competition, Shenzhen China **Sep 2020 – Oct 2021**

- Team placed 4th globally (1st in SEA) for RoboMasters University Championship Competition 2020.
- Researched and designed robot chassis using SolidWorks to meet vehicle dynamics and rollover sensitivity requisites.

SKILLS

Languages: Python | SQL | C/C++ | HTML | CSS | Javascript | Bash | MatLab | Excel VBA.
Libraries/Frameworks: TensorFlow | Keras | PyTorch | TensorBoard | Weights & Biases | OpenCV | Tkinter | SciKit-Learn | Pandas | Numpy | Seaborn | Matplotlib | Librosa | NLTK | TextBlob | BeautifulSoup | Tweepy | Mediapipe | Hugging Face | Streamlit | Pytesseract | EasyOCR | Pillow.
Tools: Git | Github | Docker | Flask | JupyterLab | Google Colab | Anaconda | VS Code | Tableau | Notion | MS Office.
Cloud: GCP Data Science & Machine Learning | AWS SageMaker, Lambda, S3, CloudWatch, CLI, Mechanical Turk.
Other Skills: Data Crawling, Scraping, Cleaning, Wrangling, Imputation & Visualization | Virtual Environments | Flutter | CSWP SolidWorks Mechanical Design | Arduino | Statistics | Google Sheet & Excel Marcos | English | Mandarin.