MIKHIL ANAND

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EDUCATION

National University of Singapore **Aug 2022 - May 2026**
Bachelor of Computing in Computer Science | **NUS Merit Scholarship Recipient**

University of North Carolina, Exchange programme with Computing Department **Aug 2024 - Dec 2024**

Raffles Institution, Graduated with 90 rank points (7 distinctions) for A-Levels **Jan 2014 - Dec 2019**

WORK EXPERIENCE

AI Research Intern, Hyundai Motor Group Innovation Centre, Singapore **Jul 2025 – Dec 2025**
Collaborated with NTU and A*STAR researchers under Hyundai's Corporate Lab on multimodal quality inspection for manual-assembly cells.

- Built a secure, offline annotation workflow for head-mounted assembly videos using Python (Tkinter + OpenCV CSRT + Grounding DINO + MediaPipe). Reduced labelling time > 5× through semi-automated tracking.
- Fine-tuned and benchmarked open-vocabulary object detectors (MQ-Det, Grounding DINO) against YOLO v11 baselines on factory datasets achieving 81.5% open-set mAP on connector detection.
- Automated robotic data capture for a 3D surface inspection arm via ROS2, enabling repeatable gap/flush scanning and dataset reproducibility.
- Authored detailed training pipelines, labeling protocols, and experiment runbooks, ensuring reproducibility in air-gapped GPU (Kubernetes) environments.

AI Software Engineer Intern, Cynapse, Singapore **Jan 2025 – Jun 2025**
Collaborated with a team of AI engineers to design and implement end-to-end machine learning pipelines:

- Pre-processed datasets, trained, and fine-tuned classification models using TensorFlow and object detection models using YOLOv11 and OpenCV.
- Developed Python business logic to operationalize detections, ensuring alignment with client-specific requirements.
- Optimised the existing pipeline by implementing batch processing with ONNX, reducing inference time by 20%.
- Deployed and integrated models with user application using Google Cloud Platform and Docker Compose.
- Followed Agile practices (daily stand-ups, weekly sprint reviews) and collaborated cross-functionally.

Backend Engineer Intern, HybridAI, Singapore **Jun 2024 - Aug 2024**
Developed the first iteration of a multi-tenant SaaS application for a startup company:

- Engineered serverless pipelines using AWS Lambda to process client machine performance metrics, along with analysis from the research team, storing structured data in Amazon RDS and unstructured data in DynamoDB.
- Designed and built a Next.js frontend, progressing from wireframes to functional PoC prototypes, continuously iterating based on client feedback.
- Developed RESTful APIs to facilitate seamless communication between the Next.js frontend and backend services, leveraging AWS API Gateway and SQS for event-driven workflows.
- Designed database schemas and migration plans with ER diagrams to support evolving data structures.
- Deployed and secured the application using AWS Amplify, Cognito for authentication, and S3 for storage.

Crypto Analyst Intern, Octava Foundation, Singapore **Mar 2022 - Jun 2022**

- Collaborated with the software team to develop a PERN stack webpage for automated retrieval, analysis, and display of predicted liquidity pool interest rates on decentralized exchanges.
- Leveraged developer APIs and scraped smart contracts to extract interest rates, using moving averages to forecast and identify optimal interest rates.

PROJECTS

Attention Isn't Enough, NLP Final Project, NUS, https://github.com/migfoo02/cs4248-g30 **Jan 2025 - May 2025**

- Developed an NLP sarcasm-detection pipeline blending handcrafted linguistic features with attention-based LLMs to study interpretability vs performance.
- Conducted feature ablations and reproducible experiments in Python/Jupyter, publishing findings to GitHub

Machine Learning Final project, UNC Chapel Hill, https://github.com/Sasmik23/ml-finals **Dec 2024**

- Built a controlled benchmark for sentiment analysis of IMDB movie reviews, contrasting sequential models (RNN/CNN/CNN+LSTM) with a transformer (DistilBERT); DistilBERT achieved 88.95% accuracy.

Medical Grand Challenge, NUS Medicine, https://github.com/Sasmik23/HealthyEats **Apr 2024 - Aug 2024**

- Developed an Android mobile application as a one-stop solution for diet management. Letter of intent signed by Fullerton Health and Singapore Nutrition and Dietetics Association
- Utilised React Native for frontend with Next.js and Postgres backend. Hosted on AWS Amplify

HealthHack, NUS Medicine, https://youtu.be/4kaPQOYIM5E **Jan 2024 – Feb 2024**

- Participated in a hackathon organised by YLL School of Medicine, developing a Microsoft PowerApp
- It allows users to upload blood tests and imaging reports, and using a document processor, the app extracts the corresponding jargon and gives comprehensive yet layman explanations for each.

NUS CS2103T- Software Engineering, https://github.com/Sasmik23/tp **Aug 2023 - Nov 2023**

- Developed a brownfield software application that keeps track of transactions for small businesses, built on JavaFX. Programmed with a team of 5, in charge of User documentation.

NUS CP2106 - Orbital, https://bitbucket.org/sasmik23/trading-doggo/src/main **May 2023 - Aug 2023**

- Developed a full-stack algorithmic trading website using Python, Flask, React and Postgres. Trading bot utilises Pandas DataFrames to perform analysis on price movements from Yahoo Finance, cross-checks with sentiment analysis from Twitter and executes trades by connecting to Interactive Brokers API, hosted on AWS EC2
- Credential: https://credentials.nus.edu.sg/10db38ff-4850-4ce9-b046-f77441bca590

Term-inator: Raffles Invent Programme, github.com/Bombbird2001/Term-inator **Oct 2018**

- Collaborated with a classmate to design a Google Chrome extension, summarising lengthy terms and conditions utilising Natural Language Processing (TF-IDF).

CERTIFICATIONS

- Algorithmic Trading & Quantitative Analysis. Credential: https://ude.my/UC-a202f370-d7dd-45eb-b69c-a13d994b9ef2
- JavaScript Algorithms and Data Structures. Credential: https://ude.my/UC-c2562903-4d8e-4658-95e4-e2b2396f218a
- Introduction to HTML, CSS, & JavaScript. Credential: https://coursera.org/share/826eeadf2eae5241fdbea8105f34d882
- Developing Front-End Apps with React. Credential: https://coursera.org/share/b5d04b609a8ba25f79315b55fa441309
- Introduction to Cloud Computing. Credential: https://coursera.org/share/267637db797aa53deae775321007521d