

Alphaeus Ng Yue Jie

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EDUCATION

Nanyang Technological University, Singapore

Aug 2020 — May 2024

- **B.Eng. in Computer Science (AI & Data Science Specialisation)**
- GPA: 4.19/5.0 - Distinction (2nd Class Upper)
- Relevant Modules: Artificial Intelligence, Machine Learning, Neural Network & Deep Learning, Natural Language Processing, Data Analytics & Mining, Information Retrieval

WORK EXPERIENCES

Panasonic R&D Center

Jul 2024 — Present

AI Research Engineer (LLM)

- Developed **Python**-based automation tools for supply-chain and production planning in **Linux OS**, cutting planning cycle time from 3 days to <1 hour, significantly improving operational mobility.
- Built a **LLM**-driven threat analysis system (using **Ollama**) to cluster 1,000+ cybersecurity articles monthly with ~96% accuracy, streamlining threat intelligence workflows.
- Created interactive **Streamlit** dashboards for real-time cyber threat visualization and supply-chain planning.
- Researched advanced “agentic” AI frameworks including LangGraph for designing reusable workflows and Agent-to-Agent (A2A) orchestration and generative planning models for strategic management planning, contributing insights for potential IP and R&D initiatives.
- Crafted effective prompts for reliable LLM outputs in agentic AI systems, ensuring production-grade code with pytest unit tests.

Home Team Science & Technology Agency (HTX), Singapore

Jan 2023 — Jul 2023

AI Developer, Intern (Computer Vision)

- Engineered a semi-automated **OpenCV** pipeline for image preprocessing and annotation, reducing manual processing time by over 90%.
- Boosted **YOLOv7** F1-score by 30 percentage points (10% → 40%) through transfer learning, data augmentation, and parameter tuning for surveillance image detection.
- Researched Siamese Neural Networks and Vision Transformers (ViT) for anomaly detection, delivering actionable insights to stakeholders.

ACP Group, Singapore

May 2022 – Aug 2022

Business Analyst Intern (Customer data)

- Innovated efficiency within the marketing team by automating the follow-up process for 600+ sales leads using a custom **Python** script. This reduced the weekly workload of marketing staff by 5 hours, optimising productivity.
- Built a Python script for automating data extraction and cleaning, from **MariaDB** to visualisation tools like **Tableau**, significantly speeding up the business analysis process.
- Researched and proposed software architecture upgrades to ensure xAPI compliance, enhancing the overall system performance.

Nanyang Technological University, Singapore

Sep 2021 — Jun 2022

Undergraduate Research - **URECA Project** (NLP)

- Analyzed sentiment on historical sources using **Python** and **SenticNet** API, identifying model weaknesses to guide improvements for model accuracy.
- Developed a sentiment analysis widget for the [Engineering Historical Monument website](#) and published research findings.

PROJECTS

Nanyang Technological University, Singapore

Final Year Project

Aug 2023 — May 2024

Title: Text Localisation in Natural Scenes (App translator)

- Developed an application that detects and translates text in images from any language to any language. Built on **ReactJS** and **Flask**.
- Integrated open-sourced libraries like **EasyOCR** for text localisation and connected the pipeline utilizing **OpenAI's** ChatGPT API for translation, performing prompt engineering for accurate outputs.

Multi-Disciplinary Project

Jan 2024 — Apr 2024

Title: Robotics System Developer (Autonomous Navigation & Image Detection)

- Developed an image recognition model, YOLOv8, on a curated dataset (>10,000 images). Performed transfer learning and achieved >98% F1-score.
- Developed **Python** code that communicates between the RPI and the STM board for movement, an Android tablet for commands, and a PC for image inference.

Neural Network & Deep Learning Project

Aug 2023 — Nov 2023

Title: Optimising FashionMNIST Apparel Recognition - Customised Neural Network Architecture Design

- Achieved 94.19% accuracy using transfer learning, batch size optimisation, early stopping, cutmix data augmentation, and custom CNN architecture like **MobileNet** and **ShuffleNet**, integrating deformable convolution and frozen layers.

Machine Learning Project

Aug 2022 — Nov 2022

Title: Predicting Customer Loyalty for Elo Merchant Category Recommendation (Kaggle)

- Performed data cleaning, feature engineering, and overfit management and employed advanced algorithms, including LightGBM, CatBoost, XGBoost, Random Forest, Extra Trees, and SVR.
- Achieved a final score of 3.62083, propelling the team to a commendable position within the top 50% of the Kaggle leaderboard despite being new to Machine Learning.

Data Analytics & Mining Project

Aug 2022 — Nov 2022

Title: Research on various Clustering and Classification algorithms.

- Led team to enhance CBA algorithm with bagging for 25% F1-score improvement and researched K-means, K-means++, and DBSCAN clustering efficiency.
- Researched clustering algorithms (K-means, K-means++, DBSCAN) and analysed the efficiency via various metrics (Runtime, Silhouette Coefficient, Calinski-Harabasz Index, Davies-Bouldin Index).

LEADERSHIP AND VOLUNTEER EXPERIENCE

Church Camp Lead Organizer, Malaysia

Jun 2023 & Jun 2024

- Organized two 4-day camps for over 80 combined attendees, leading logistics, budgeting, and cross-cultural teams, enhancing project management and stakeholder communication skills.

Nanyang Technological University Volleyball Team

Sep 2020 - Dec 2023

Member

- Represented NTU and achieved podium finishes in various competitions.

Hall 2 Chess Team, Nanyang Technological University

Captain

Aug 2022 — May 2023

- Led and inspired the Hall Chess Team, fostering deep analytical skills among team members.

SKILLS / INTERESTS

- **Languages:** English, Chinese
- **Programming:** Python, Git, SQL, Java, JavaScript, C, C++, React Native-JS, HTML, CSS, PHP, SVG, Prolog, R
- **AI/ML Frameworks:** TensorFlow, PyTorch, Ollama, Scikit-learn, OpenCV, YOLOv8, Detectron2, TridentNet
- **Data Science & Analytics:** Tableau, Matplotlib, Seaborn, PowerBi