
EDUCATION**Nanyang Technological University****Aug 2018 – Jul 2022**

- B. Eng. in Electrical and Electronic Engineering
- GPA: 4.15/5.00.
- Specialization: Info-communications Engineering (Data Intelligence and Processing)
- Relevant Modules: (1) Introduction to Data Science and Artificial Intelligence (2) Computer Vision (3) Data Structure and Algorithms (4) Machine Learning Design and Application (5) Cyber Security

EMPLOYMENT**Microsec - Cybersecurity Software Engineer****Jun 2023 - Current**

- Enhanced "micro-edge-agent" for IoT device telemetry monitoring, improving the **Machine Learning based CAN BUS anomaly detection** to **thwart tampering** using **Python and C**.
- Designed and Implemented secure CI/CD pipeline using **Git and Docker** and introduced custom repository support for streamlined software updates.
- Developed unit tests with **Gtest** and bash scripts for attack simulation, improving software security.
- Took charge of build and release processes, including **code compilation, security scanning, and packaging**, ensuring streamlined deployment and high software security standards.
- Developed **firmware enhancements for ESP32 devices**, enabling features such as certificate renewal, telemetry publication, and Firmware Over-The-Air (FOTA) updates, contributing to improved device security and functionality.
- Upgraded the backend **Python Flask** application to support FOTA, facilitating seamless and secure firmware updates across deployed devices.

Micron Technologies – Yield Enhancement Engineer**Aug 2022 - May 2023**

- Developed **Python program** to clean and pre-process **Big Data** asses potential yield impact of deviated materials using **pandas**
- Created a **shell script and python** program to run an integrity check for the data pulling pipeline
- Built an inline and probe Big Data visualization dashboard executable program using **Python Streamlit** module

Transcelestial – Electronics Engineering Intern**Dec 2021 – May2022**

- Evaluated new laser sources, and conducted accelerated aging tests (soldered parts **and coded a logger using ADC on Raspberry Pi**)
- Recommended electronics hardware improvement based on an existing initial **FMEA (Failure Mode and Effect Analysis) and statistical modeling for survivability analysis**
- Performed a **time-series prediction modeling** using Facebook Prophet to predict laser diode EOL

IBB, A*Star –Data Scientist Intern**Jan 2021 – Jun 2021**

Development of Machine Learning models for Medical Technology and Agri-Food Applications

- Developed **noise reduction and normalization** pipelines for pre-processing **hyperspectral images**, improving data quality for analysis
- Implemented a **baseline model** to predict human skin tissue chromophores from Hyperspectral Imaging data **using MATLAB and Python** based on optical physics
- Created a prediction for RNA and DNA spectroscopy data using **PCA and Partial Least Square Regression**

PROJECTS & RESEARCH EXPERIENCE

Chatbot using Seq2Seq Modelling

December 2022 - Current

GitHub Link: <https://github.com/jstntrsn/MikabotProject>

- Collected and processed dataset for chatbot input using **NLTK**
- Trained **encoder to decoder model (with attention)** using **PyTorch** to build a functional chatbot
- Transitioning the development of the chatbot Seq2Seq model to exploring and integrating LLMs aiming to enhance conversational abilities
- Engaged in extensive research and application of LLMs to improve chatbot interactions, focusing on nuanced understanding and accuracy in complex dialogues.

Classification of Singapore Food using Convolutional Neural Network

Apr 2022

- Coded a **convolutional neural network model** using **PyTorch transfer learning** (i.e., Python Programming) to recognize Singaporean Food; successfully achieved 85.42% accuracy on test data

Gym Pose Estimation

Oct 2021

GitHub Link: <https://github.com/AndrianH18/kajja>

- Collaborated with a team of 5 to collect and clean gym poses datasets
- Implemented simple rule-based detection of correct data set poses using **OpenPose and OpenCV**
- Tested and compared the **time-delay neural network** AI model with the simple rule-based detection

NTU Design and Innovation: Micro Drone and Its Application

Jan 2021 – Nov 2021

- Deployed a **vision-based positioning system** using ArUco fiducial markers and the drone's onboard camera.
- Enabled fully **autonomous flight** of the drone by combining data from the drone's onboard **IMU and the vision-based positioning system based on Kalman filter** using python module.
- **Modified and refactored a C++ module** to interface with multiple drones via **UDP**.
- Devised a flight control firmware with **FreeRTOS** for **ESP32** based on the CrazyFlie open-source project.

Stock Prediction Using NLP

Feb 2021

- **Implemented** recurrent neural network (**LSTM**) **model** to predict several closing stock prices in **Python**
- **Utilized web scraping techniques** to collect Twitter and Reddit **social media data** using **Python** using **Selenium and BeautifulSoup**
- **Adjusted** prediction model to implement **Sentiment Analysis (NLP)**. **Boosted the accuracy by 10%**

LEADERSHIP EXPERIENCE

NTU Buddhist Society - Welfare Director

Aug 2018 – Aug 2019

- Led and nurtured a team of 5 members to conduct bonding events.
- Planned 4 events to foster bonding and increased participation rate of members by 10%.

MLDA@EEE – Publicity Head

May 2021 – May 2022

- Designed and edited posters, merchandise, and videos for MLDA events.
- Conducted workshops for 30 people on Data Science and Regression. Result in 4.5/5.0 overall feedback
- Conducted Photoshop workshops for committee members, resulting in an increase of 20% in productivity

LANGUAGES AND TECHNOLOGIES

- **Language:** English, Bahasa Indonesia, Mandarin
- **Programming:** C, C++, Python, MATLAB, HTML, CSS, SQL, Git
- **Software Framework:** Pandas, NumPy, Pytorch, TensorFlow, OpenCV, Linux Shell Scripting, Matplotlib, Seaborn, Keras, NLTK, Scipy, Prophet, Streamlit, Beautifulsoup, Selenium, Gensim, SpaCy, Word2Vec, Docker, Gitlab