

Aaron Ashwin Rajoo

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EDUCATION

National University of Singapore (NUS)

Dec 2023

B.E. in Mechanical Engineering, Minor in Computer Science | Grade: 4.13/5.00 Distinction Honors

Ngee Ann Polytechnic (NP)

May 2018

Diploma in Engineering Science | DSO Diploma Scholar | GPA: 3.93/4.00

TECHNICAL SKILLS

AWS, Confluence, Jira, C, C++, HTML/CSS, Java, JavaScript, Next.js, NodeJS, Python, React

PROFESSIONAL EXPERIENCE

Full Stack Software Engineer Intern | Cinch SG

May 2023 – July 2023

- Leveraged Next.js to build Frontend UI tailored for finance team to track orders and monitor business performance. Collaborated with stakeholders to ensure web page met organizational needs.
- Executed ETL for backend infrastructure by utilizing Python and FastAPI to construct APIs for data retrieval from SQL databases to specified endpoints for data integrity.
- Utilized Jira to manage project tasks, user stories, and sprints, ensuring efficient workflow and task prioritization.

Machine Learning Intern | Makino Asia Group

May 2022 – July 2022

- Trained a Bidirectional Gated Recurrent Unit (BGRU) Neural Network model to predict final surface conditions and operation time for the Wire EDM (WEDM) machines.
- Pre-processed data with various techniques including data cleaning, normalization, one-hot encoding, data inversion with pandas and NumPy, and formatted data to 3D Tensor inputs for ML.

Electronics System Intern | DSO National Laboratories

Feb 2018 – Apr 2018

- Developed a prototype of an Alert System that detects anomaly and alert a hierarchy of subscribed users through TCP and Telegram's Bot API.

PROJECT EXPERIENCE

Hands-free Verbal Lock | NUS | ([View project](#)) – ([GitHub](#))

Oct 2023 – Nov 2023

- Developed an IoT secure verbal lock through cloud computing, object detection and audio classification.
- Images captured from a microcontroller were processed and sent to AWS IoT via MQTT. Deep learning was leveraged through AWS Rekognition and Lambda for object detection.
- Audio recordings through an I2S Microphone were captured and wav files were processed and spliced before utilizing a HuBERT model for audio classification.

Cervical Landmark Detector (Final Year Project) | NUS & NUH | ([View project](#)) – ([GitHub](#))

Aug 2022 – Apr 2023

- Utilized ML to develop an AI-Computer Vision solution that enhances first-level diagnosis of airway difficulty in patients.
- Implemented semi-supervised learning to train CNN models on a set of 2,000 labelled images. Pretrained models then generated pseudo-labels for more than 20,000 unlabeled images - to iteratively retrain CNN models further.
- Achieved a normalized mean error of less than 3% for relevant neck features.

LEADERSHIP EXPERIENCE

Executive Committee – Quartermaster | NP Guitar Club

Apr 2015 – Apr 2018

- Performed, managed food catering, and handled ticket sales for biannual concerts of up to 400 attendees and facilitated training camps for over 200 members.
- Liaised with the school and external vendors to purchase and allocate equipment to a club of 60 students.
- Handled publicity and recruitment of 60 new members annually.

Ambassador – School of Engineering | SoE Rangers

Apr 2016 – Apr 2018

- Facilitated major school events such as open-houses and NP Math's Challenges
- Student leader for International Symposium on Advances in Technology Education 2017 to facilitate and share innovative teaching methodologies and practices in NP.

COMMUNITY SERVICE

Ng Teng Fong General Hospital | Music-on-the-Move

Apr 2016 – Dec 2016

- Monthly visits to the hospital with a group from NP Guitar to perform for the warded patients.