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EDUCATION

Nanyang Technological University, Singapore   Aug 2020 – May 2024
Bachelor of Engineering, Computer Science
- Specialising in Artificial Intelligence and Cybersecurity.

WORK EXPERIENCE

Mutwil Lab, School of Biological Sciences, NTU   Sep 2023 – Dec 2023
Research Intern
- Developed insightful visualisations from genomic data comparing different stages of fern species for publishing paper in Nature Communications journal.
- Collaborated with research team to understand and implement data visualisations using Matplotlib and Seaborn.
- Programmed Python scripts to automate generation of data visualisations for 62 processes across 12 fern species.

STMicroelectronics   May 2023 – Aug 2023
Data Science and Analytics Intern
- Collaboratively designed generalised testing solution architecture with data scientists and engineers.
- Developed the backend of testing solution for machine learning models using unittest, scikit-learn, FastAPI etc.
- Deployed and tested models on Dataiku platform to classify wire bond integrity in semiconductor chips.
- Conducted a 3-day workshop in Java for 20+ staff from different sites.

Temasek Laboratories @NTU   Jan 2023 – May 2023
Full Stack Developer Intern
- Collaborated with a team of developers to improve multimedia transcription and indexing MERN (MongoDB, Express, React, and Node.js) application.
- Refactored TypeScript code to eliminate hard-coded values and tested docker deployments on Azure cloud.
- Implemented webhooks for automation of speech-to-text job updates followed by frontend improvements and fixes.
- Developed and optimised python script for processing code-switch ASR (Automatic Speech Recognition) output.

VFlowTech   May 2022 – Aug 2022
IoT Intern
- Reviewed 3rd party IoT platform and coordinated with developers to debug issues and improve UI and UX.
- Programmed firmware on microprocessors using C++ with IoT communication protocols.
- Evaluated and tested AWS, GCP, Azure and Digital Ocean cloud services for IoT platform development.
- Spearheaded IoT Development team for creating a new monitoring platform using MERN stack.
- Set up servers on AWS EC2 and added NGINX configuration for transport layer security encryption.
- Studied IoT data and proposed implementation of machine learning algorithms for predictive alerts.

Mentogram   May 2021 – Aug 2021
Business Analyst Intern
- Identified new development channels and provided a solution-oriented approach to appeal to customer traction and create an effective market base.
- Prepared a targeted sales pitch based on insights gained from market research and data analysis.
- Performed in-depth competitor analysis to identify strengths and weaknesses of similar products using PowerBI.

PROJECTS

Final Year Project | *Robust Voice Activity Detection using DNN Approaches*   Sep 2023 – Mar 2024
- Trained and tested voice activity detection models on standard speech datasets using NSCC Aspire2A.
- Explored and experimented with various architectural modifications for VAD models, aiming to enhance its performance and efficiency through iterative testing and analysis.
- Optimised model output time for generating real-time output using Open Neural Network Exchange (ONNX).

Machine Learning | *Horse Health Prediction*   Feb 2024 – Apr 2024
- Analysed health data of horses; Performed data cleaning and creation of new features for better prediction accuracy.
- Trained machine learning models like XGBoost, LightGBM, Random Forest, etc., to predict a horse's survival.
- Placed in the top 6.7% globally in Kaggle Competition's public leaderboard.

Neural Networks & Deep Learning | *Analysis of Deep Image Colourization Techniques*   Oct 2023 – Nov 2023
- Evaluated and conceptualised various Deep Learning Image Colourization models and architectures using PyTorch.
- Conceptualised new image colourization models using Convolutional Neural Networks (CNN)
- Enhanced existing deep learning models using novel loss functions and metrics.

Security Management | *Addressing Cyber Supply Chain Security Risks*   Aug 2023 – Nov 2023
- Collected data on past security incidents to identify common attack vectors used by threat actors in software supply chain attacks.
- Examined 3rd-party vendor risks and highlighted the challenges faced by organisations during supply chain life cycle.
- Proposed Cyber Supply Chain Risk Management (C-SCRM) strategies based on recommendations by NIST and CISA for prevention, detection and mitigation of risks.

Alfinity Hackathon | *Intellicheck*   Mar 2023
- Conceptualised an application that uses AI to help teachers correct exams and provide personalised feedback to students
- Sourced handwriting OCR models from Hugging Face, using OpenCV for pre-processing
- Performed Named Entity Recognition using Flair, with NLTK and SpaCy for natural language processing.

Multi-Disciplinary Project | *Self-Navigating Robot Project*   Aug 2022 – Nov 2022
- Led a team of 8 to create a self-navigating robot in a known environment controlled with an Android tablet.
- Programmed an Android application for controlling robot via Bluetooth.
- Achieved rank 1 competing against 47 teams in object recognition and navigation task.

Advanced Software Engineering | *PreSchool GoWhere*   Aug 2022 – Nov 2022
- Created a full stack web application to generate personalised recommendations for pre-schools based on 10 criteria.
- Leveraged PostgreSQL, Express, React, Node.js (PERN stack), Google Maps API and deployed on Firebase.

Software Engineering | *MyBikeSG*   Feb 2022 – Apr 2022
- Pioneered a full stack web application to help cyclists find bicycle racks, routes, and repair shops close to desired location using Land Transport Authority dataset and Google Maps API.
- Created using MongoDB, Express, React, and Node.js (MERN stack) and deployed on Firebase and Heroku.

Object Oriented Design and Programming | *Restaurant Reservation System*   Oct 2021 – Nov 2021
- Built a flexible restaurant point of sale system as a command line application in Java utilising object-oriented programming concepts.
- Modelled a reservation system by applying UML class and sequence diagrams using Visual Paradigm.

Introduction to Data Science and AI | *Review Score Prediction in E-Commerce*   Jan 2021 – Mar 2021
- Analysed the Brazilian e-commerce public dataset by Olist on Kaggle.
- Predicted review score of different categories of products using numPy, pandas, seaborn & matplotlib.
- Trained regression models (linear, random forest) and classification models (logistic, random forest).

CO-CURRICULAR ACTIVITIES

AI Student Developer Conference, AI Singapore | *Program Director*   Mar 2023 – May 2023
- Successfully planned and organised the inaugural AI Student Developer Conference 2023 with 300+ attendees.
- Developed admin portal using Next.js, Firebase Functions, and Firestore for seamless event management.
- Coordinated participation of leading companies like AWS, NVIDIA, GovTech, and Grab to provide industry insights.
- Organised workshops by Microsoft x Jackett and AWS, engaging 45+ students with hands-on AI learning.
- Facilitated signing of MoU between The Digital and Intelligence Service (MINDEF) and AI Singapore.

NTU Computer Science and Engineering Club | *Academics Executive*   Oct 2022 – Apr 2023
- Organised '*Techterview 101*' event for helping students crack technical interviews.
- Delegated creation and correction of previous year paper solutions.
- Collaborated with the Office of Student and Alumni Affairs to organise the *'Peer Tutoring Programme'*.

Institution of Engineers, Singapore – NTU Student Chapter | *Infotech Project Manager*   Oct 2022 – Apr 2023
- Designed and led development of club website using React and Bootstrap.
- Collaborated with IEEE-NTU to organise 'Codewars' event, attracting 100+ students to learn basics of coding.

ACHIEVEMENTS & CERTIFICATIONS

International Quant Championship - Stage 1, World Quant | Top 20%   Jul 2023

V-Work Asia-Ready Exposure Programme, Cognizant x National Youth Council   Jul 2022
- Presented the role of 'Data Science and AI in Pandemic Management' with a team from ASEAN, India and China.
- Ranked amongst top 4 teams and awarded with "The Best Challenge Statement Project Presentation".

JPMorgan Chase & Co. | *Software Engineering Virtual Experience*   Jun 2022 – Jul 2022

Texas A&M University, Qatar | *Creative Fusion – Introduction to 3D Modelling*   Jun 2020 – Jul 2020

SKILLS

Programming Languages: C/C++, Python, Java, SQL, HTML/CSS, JavaScript, TypeScript
Cloud: Azure, AWS, GCP, Firebase, Digital Ocean.
Data Science & AI: Python (numPy, pandas, seaborn, matplotlib, PyTorch), PowerBI, Dataiku
Databases: NoSQL *(MongoDB, CosmosDB, DynamoDB)*, SQL *(Postgres, MySQL, Supabase)*.
Network Protocols: TCP/IP, UDP, HTTPS, SSH, MQTT, Modbus.
Project Management: Github, Tortoise SVN, Trello.
IDEs: Eclipse, Netbeans, Jupyter, Android Studio.
3D Modelling: Fusion 360
Languages: English (Proficient) and Hindi (Native).