

ALVIN BEN ABRAHAM

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EDUCATION

National University of Singapore (NUS)

Aug 2020 - Jul 2024

Bachelor of Engineering (Computer Engineering) Honours

- Second Major in Innovation and Design.
- CAP: 4.59 / 5.00 (1st Class Honours).
- Relevant Coursework: Programming Methodology (Python), Data Structures and Algorithms (C++), Software Engineering (Java), Real-Time Operating Systems (C), Digital Design (Verilog).

RELEVANT EXPERIENCE

Software Engineer, TikTok eCommerce / ByteDance

Aug 2022 - Present

- Planned and constructed efficient and highly reusable front-end systems driving complex web applications for e-commerce products, increasing unique views by 110% and retention rate by 24%.
- Collaborated with product design, product management and software engineering teams to deliver more than 3 large-scale features across more than 5 countries over 3 months.

Full Stack Developer, Interseed Co

Jul 2021 - Jul 2022

- Accomplished mobile responsiveness for Interseed's Social Networking application (app.interseed.co) to increase percentage of mobile users from 20% to 74% of current user base.
- Collaborated with development team to design features for initial launch over 5 weeks, and collected user feedback to perform bug fixes with React, Typescript, and Bootstrap.
- Created new REST API endpoint in NodeJS server with ExpressJS, by interfacing with MongoDB database to group more than 200 website users by location for display on a dynamic map, created using React Leaflet.
- Championed product management methodologies (user personas, brainstorming) to develop product features to specifically assist main customer base over 2-week timeline.

Computer Science Teaching Assistant, National University of Singapore **Aug 2021 - Dec 2021**

- Taught and graded a batch of 22 students about fundamental programming concepts leveraging Python and Object-Oriented Programming.
- Received 4.3/5 and above on all metrics from student feedback.

Software Project Manager, NUS RoboMasters

Aug 2020 - Aug 2021

- Researched different development kits and cameras such as the NVIDIA NX & Raspberry Pi Cam to design an embedded system for target detection and aiming.
- Spearheaded computer vision team to implement Yolov5 on PyTorch and Yolov4 on TensorRT along with Robotic Operating System (ROS) 2 to do target detection of a custom dataset.

- Integrated CSI camera with Jetson Xavier NX with Ubuntu 18.04 to fix pre-existing robot hardware.
- Created a custom PyTorch model from self-annotated database to track and aim at targets with less than 20ms latency.

PROJECTS

Cloud Infrastructure Manager, Ninja Way

Feb 2022

- Spearheaded development of a mobile application using Flutter (Dart) during 12-hour NinjaVan hackathon to show drivers best (speed and convenience) route to complete all deliveries.
- Devised and implemented cloud architecture using Google Cloud Functions, Firestore, and API gateway costing less than \$4 per month to handle computation so as to reduce smartphone battery consumption for delivery drivers.

Technical Lead, Fridget

Sep 2021 - Nov 2021

- Developed a Command Line application with Java, with user/developer guide in less than 5 weeks to help users manage fridge inventory and reduce food wastage.
- Took advantage of Gradle to build applications for production, and took advantage of Github Workflows to enable continuous integration while enforcing coding standards.

Team Leader, SAM (Super Autonomous Robot) II

Aug 2021 - Nov 2021

- Constructed a robot to receive instructions via WiFi through an ESP32 sending UART instructions to a FRDM-KL25Z used to control movement of robot, with less than 2ms of lag between instruction and action.
- Managed development of a Real-Time Operating System (RTOS) for robot with Keil-RTX in C.

Team Leader, SAM (Super Autonomous Robot)

Jan 2020 - May 2021

- Wrote and designed code with teammates using ROS 2 and Python for SAM to navigate a randomly generated maze with a wall-following algorithm.
- Designed custom Printed Circuit Board to identify targets emitting IR radiation using a thermal sensor, and launch projectiles using a combination of 5 motors.
- Achieved 1st place versus 9 other teams for overall project evaluation.

CO-CURRICULAR ACTIVITIES

President, NUS Innovation and Design Programme Students' Club

Dec 2021 - Present

- Invented outreach opportunities for 3 NUS startups by partnering with external NUS organisations.
- Led planning and execution of a self-initiated nationwide inter-university ideathon sponsored by James Dyson Foundation, Silicon Laboratories, and nSearch Global with a prize pool of \$6000.

President, ACJC (Anglo-Chinese JC) Debate and Oratorical Society

Jun 2016 - Jun 2017

- Planned and organized regional and international debating championships with over 200 participants.
- Obtained awards such as TPJC Oratory Championship Finalist, 2016 and Asian World Schools Debating Championships Semi-Finalist, 2016.