

# ALVIN BEN ABRAHAM

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## EDUCATION

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**National University of Singapore (NUS)** **Aug 2020 - Jul 2024**

**Bachelor of Engineering (Computer Engineering) Honours**

- Second Major in Innovation and Design.
- CAP: 4.41 / 5.00.
- Relevant Coursework: Programming Methodology (Python), Data Structures and Algorithms (C++), Software Engineering (Java), Real-Time Operating Systems (C), Digital Design (Verilog).

**Stanford University**

**Apr 2023 - Aug 2023**

**School of Professional Development**

- Took entrepreneurship courses as part of NUS Overseas Colleges, with an opportunity to hear from prestigious figures - Ilya Sutskever (OpenAI, Co-Founder) and Frederic Kerrest (Okta, Co-Founder).

## RELEVANT EXPERIENCE

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**Software Engineer, Unit21 (San Francisco)** **Jan 2023 - Present**

- Built SOC2 compliant frontend and backend features for financial compliance management tools processing upwards of >1B transactions per call.
- Started working on integrating OpenAI LLM functionality to enable customers to identify patterns and make Matplotlib graphs out of data shared with Unit21.

**Software Engineer, TikTok eCommerce / ByteDance (Singapore)**

**May 2022 - Nov 2022**

- 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 (Singapore)**

**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.
- Devised 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**

**Aug 2021 - Dec 2021**

## **Singapore**

- 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 (Singapore)**

**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**

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### **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**

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**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.