

# ALVIN BEN ABRAHAM

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## EXPERIENCE

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### Frontend Engineer

TikTok Global-Ecommerce / ByteDance

June 2024 - Present, Singapore

- Technical owner of a revenue-critical **engagement platform (Popup Infrastructure)** serving 2B+ MAU across multiple e-commerce surfaces in SEA; evolved it from a single-page feature into an org-wide, cross-platform system.
- Defined long-term technical strategy, roadmap, and resourcing in partnership with product and engineering leadership; aligned platform scalability with aggressive business growth goals.
- Improved end-to-end performance (render latency, animation loading, API prefetching) by 30–50%, optimizing for low-end devices and unstable network conditions in high-traffic SEA markets.
- Architecting a **no-code popup framework powered by a Golang BFF engine**, reducing feature launch cycles from -10 days to -3 days and cutting popup client bundle size by -50% by centralizing business logic server-side.
- Built and maintained shared frontend infrastructure and documentation (popup widgets, animation framework, onboarding documentation) adopted by 4+ teams, reducing duplicated engineering effort and standardizing UI patterns across surfaces.
- Delivered multiple monetization and engagement features contributing to sustained revenue growth at scale.

### Software Engineer

Unit21

January 2023 - December 2023, San Francisco

- Built SOC2 compliant frontend systems (ReactJS, Typescript, Javascript) and backend(Flask, Python, Kafka) features for financial compliance management tools processing upwards of >1B transactions per call.
- Integrated LLM functionality in customer application to enable customers to identify patterns and produce graphs out of data shared with Unit21.

### Software Engineer Intern

TikTok Global E-Commerce / ByteDance

May 2022 - November 2022, Singapore

- Planned and constructed efficient and highly reusable front-end systems (ReactJS,Typescript) using 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

July 2021 - July 2022, Singapore

- 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.
  - 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.
  - Collaborated with development team to design features for initial launch over 5 weeks,and collected user feedback to perform bug fixes with React, Javascript, Typescript, and Bootstrap.
  - Championed product management methodologies (user persona, brainstorming) to develop product features to specifically assist main customer base over 2-week timeline.
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## EDUCATION

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### Bachelor of Engineering (Computer Engineering) Honours

National University of Singapore (NUS) • Aug 2020 - Apr 2024

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

### NUS Overseas Colleges (Silicon Valley)

Partner University: Stanford University (MS&E) • Jan 2023 - Dec 2023

- Participated in a year-long software engineering internship in a Series C Fintech startup, while taking part time classes in Stanford University.
  - Secured a \$10,000 grant for the further development of a startup aiming to use software to optimize processes within warehouses in the South-East Asian market.
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## PROJECT

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### Cloud Infrastructure Manager, Ninja Way

February 2022 - February 2022

- Spearheaded development of a mobile application using Flutter (Dart) during 12-hour NinjaVan hackathon to help drivers find the 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**

September 2021 – November 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.
- Used Gradle to build applications for production and Github Workflows to enable continuous integration while enforcing coding standards.

### **Team Leader, SAM (Super Autonomous Robot) II**

August 2021 – November 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)**

January 2021 – May 2021

- Wrote and designed code as a team 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 athermal sensor, and launch projectiles using a combination of 5 motors.
- Achieved 1st place versus 9 other teams for overall project evaluation.

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## **INVOLVEMENT**

### **President**

NUS Innovation and Design Programme Students' Club • December 2022 – December 2023

- 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.

### **Software Vice-President**

Singapore • NUS RoboMasters • August 2020 – August 2021

- Spearheaded computer vision team to deploy YoloV5 on PyTorch and YoloV4 on TensorRT along with Robotic Operating System (ROS) 2 for target detection of a custom dataset with less than 20ms latency.
- Integrated CSI camera with NVIDIA Jetson Xavier NX with Ubuntu 18.04 to fix pre-existing robot hardware.

### **President**

ACJC (Anglo-Chinese JC) Debate and Oratorical Society • June 2016 – June 2017

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

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## **SKILLS**

Frontend Engineering: ReactJS, TypeScript, JavaScript

Backend Engineering: Python (Flask), Golang, NodeJS (Express), Databases (MongoDB, PostgreSQL, ORMs)

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