

Noah Sun

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Education

University of Waterloo - Candidate of BAsC. of Mechatronics Engineering

September 2025 – April 2030

Skills

- **Languages/Frameworks:** C++, C, Java, Python, JavaScript, TypeScript, GoLang, Flutter, FastAPI
- **Hardware:** NVIDIA Jetson Nano, Arduino, STM32
- **Developer Tools:** Git, Firebase, Linux, Figma, MS Office

Experience

Co-founder and Lead Developer – Elapse | *Dart, Flutter, Typescript, Firebase*

July 2024 – August 2025

- Led 4 developers to create a VEX Robotics tournament app that boosted access to schedules, rankings, and match data by **80%**
- Designed novel features like adaptive match times and scouting forms, achieving **3500+ downloads** and **5.0 star App Store rating**
- Integrated Firebase Auth, Firestore, and Cloud Functions to sync data between team members, reducing scouting times by **30%**

V5RC Robotics Coach – Mi3L Schools | *C++, Fusion 360, CNC Machining*

July 2024 – August 2025

- Coached **2 world class teams**, guiding them to win **5+ awards** at both local and international events
- Taught odometry, vision systems, and modular libraries, boosting autonomous routine scores by **20%** and match win rate by **15%**

V5RC Team and Programming Lead – Checkmate Robotics | *C++, Git, Fusion 360*

June 2019 – July 2025

- Led team of 6 in robot design, library structure, and documentation, winning the **Create (innovation) Award** at VEX Worlds 2024
- Engineered and deployed ArkLib, enabling the team to qualify for VEX Worlds in **5 consecutive years** and achieve the **Think (programming) Award** at an international event
- Designed and tuned control algorithms (PID, motion profiling) to maximize drivetrain precision and autonomous reliability

FTC Team Software Lead – Bayview Secondary School | *Java, Solidworks*

July 2024 – June 2025

- Led 5 programmers to develop a library for precise 2-axis arm control and efficient mecanum drivetrain navigation, reducing task times by **15%** and winning the **Control (programming) Award**
- Trained 4 new programmers on control algorithms and drivetrain systems, ensuring equal contribution from all team members

VAIC Team Embedded Systems Lead – Mi3L Schools | *C++, Git, Linux, Python*

May 2024 – June 2024

- Developed an API enabling the VEX Brain to process 3D spatial data from the Intel RealSense depth camera via the NVIDIA Jetson Nano for adaptive field navigation, winning the **Innovate Award and Skills World Champion** at VEX AI Worlds 2024
- Diagnosed and fixed critical communication issues, enabling **2 robots** to reliably navigate autonomously in **10+ matches**

Projects

ArkLib | *C++, Git*

June 2020 – July 2025

- Modularized odometry and motion control algorithms using OOP, enabling seamless integration of **5+ robot configurations**
- Enhanced motion algorithms for reliable precision, achieving **1" and 1° accuracy** via improved tuning and settling conditions
- Designed reusable libraries and APIs, cutting code integration time by **30%** and standardizing code across multiple seasons

Mentorful | *Dart, Python, Flutter, FastAPI*

July 2025

- Developed interactive learning modules using Flutter and FastAPI to support rehabilitation efforts and reduce recidivism
- Implemented personalized reminders and tasks synced with Google Calendar API and a scoring system to keep users engaged

Boggle – Team Lead | *Java, Git, Figma*

May 2024 – June 2024

- Led a 4-person team to create a digital version of Boggle, meeting all deadlines by optimizing project timelines with Gantt charts
- Integrated backend modules (word validation, game logic, etc.) seamlessly with the frontend UI implemented with JavaFX
- Engineered an AI opponent using recursive searching algorithms to provide varying levels of difficulties, enhancing replayability