

# Shane So

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## Experience

### Research Assistant | SFU Autonomous Intelligence & Robotics (AIRob) Lab

Sep 2025 - Present

Led engineering for controlling drones in 3D space using a Vicon motion capture system, Docker-contained ROS nodes, and C++ codebases. Applied research for rendering visuals in RViz to capture drone motion scenes using hardware-accelerated graphics firmware like OpenGL and Mesa3D.

### Algorithm Engineer | SFU Rocketry

Sep 2025 - Present

Wrote algorithms for rocket trajectories in MATLAB and ran simulations for 7+ test cases. Worked with an amazing team and had a lot of fun working on projects.

### Software Engineer Intern | National Research Council Canada

Jun 2025 - Aug 2025

Built a new systems software to protect the environment using C++, Arduino, and sensors. Led meetings with clients and whiteboard workshops with my team. Made a new algorithm that reduced program size by 51% and flash writes by 44% under less than 33 KB memory overhead.

### Data Analyst Intern | AMPEL

July 2025

Built libraries in Python and C++ for running regression models on spectroscopy datasets to understand how scientists can improve water safety. Achieved correction rates of around 90% accuracy.

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## Selected Research / Projects

### Redis Key-Value Store

Proposed features for RDB persistence by serialization and event-based concurrency with POSIX epoll. Debugged and profiled with GDB and GCC profilers (gcov/gprof). Tested for memory and cache leaks with Valgrind.

### AIRial: Multi-Agent Robot Path Planning

Developed C and C++ software for drone swarm coordination. Designed Bash scripts in multiplexed Linux userspace to launch and control firmware.

### Lux: Immunotherapy Analyzer

Built an app in TypeScript and React Native to help oncologists track tumor response and improve treatments. Deployed on Expo and EAS, utilizing a RESTful API backend to post metadata on built-in medical models.

### Omni: Medical Ledger

Programmed a CLI-based data tracker in C++ for storing tamper-resistant patient records. Designed a hash function on top of SHA3-256 for encryption.

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## Education

### Simon Fraser University

BSc. Computer Science

Expected Graduation: May 2028

## Technical Skills

### Languages

C++, C, Python, Java, TypeScript

### Tools

Linux, Git, Docker, GNU (gcc, gdb), Valgrind, CMake

### Frameworks & Libraries

POSIX, ROS, cstdlib, sys/net, sha3

### DevOps & Databases

AWS, Firebase, GitHub Actions, Kubernetes, Grafana