

# Benjamin Young

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## Skills

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- **Language and Frameworks:** C++, C, C#, .NET, Python, Robot, Rust, Tensorflow, OpenCV
- **Tools and Technologies:** Git, Linux, Windows, ROS2, Gazebo, Docker, PostgreSQL

## Education

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**University of Waterloo**, BSc in Systems Design Engineering Sept 2021 – May 2026

- **Coursework:** Data Structures and Algorithms, Circuits and Instrumentation, Linear Systems and Signals

## Experience

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**Software Engineering Intern**, Jaza Energy Sept 2024 – Dec 2024

- Engineered and deployed a deep learning model with TensorFlow, Keras and Python to analyze battery pack history, predicting occurrences of battery fraud with an accuracy of 99.5%
- Built data analysis tools with Python and PostgreSQL to track and manage battery distribution and employee payments, facilitating delivery of electricity to 200+ communities in Sub-Saharan Africa
- Developing communication firmware in C for an automated battery pack cycling system, tripling the amount of test data collected and driving pack quality

**Founding Software Team Member**, University of Waterloo RoboSub Team July 2024 – Present

- Architecting perception and control software with ROS2 and C++ for an autonomous underwater vehicle
- Leading research and implementation of computer vision algorithms and software with Python, OpenCV, and YoloV8 for identification and analysis of underwater targets and symbols

**Software Engineering Intern**, QEYnet Jan 2024 – Apr 2024

- Delivered a free-space Quantum Key Distribution system to the National Research Council to accurately send and receive quantum keys with a range of up to 8km, demonstrating a scalable model for future quantum networks
- Developed telescope alignment software with Python, OpenCV, and C# that uses computer vision and GPS for a pointing/guiding system, enabling stable quantum key transmissions with 99.9% accuracy
- Implemented C and C# interfaces for optical lens manipulation, encoding laser pulses to generate quantum keys

**Embedded Software Engineering Intern**, Teledyne Flir May 2023 – Aug 2023

- Developed a real-time, multi-threaded C++ software bridge that integrated the Mavlink messaging protocol (UDP) with the R70 SkyRanger drone, driving sales by improving UAV compatibility with existing fleets
- Created and managed a comprehensive automated test suite for SkyRanger GPS in Python that evangelized other developers to write defect-free code, increasing development velocity by 60%
- Identified, debugged, and patched 27 software bugs in C, C++, Python, and Robot prior to the release of a new major version of the SkyRanger drone firmware, allowing for a bug-free release

**Test Systems Development Intern**, Teledyne Flir Jan 2022 – Apr 2022

- Developed Python scripts using Pandas, NumPy, and Matplotlib to automate data analysis reports of test processes, allowing top causes of error to be easily identified and resolved and increasing First Pass Yield by 20%
- Applied continuous improvement to the workplace by creating test fixtures, writing instructions and performing time studies to reduce human error and decrease test time by 50%

## Projects

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**Maze-Solving Robot Simulator** [github.com/micromouse](https://github.com/micromouse)

- Developed a robot to solve randomly generated mazes with different pathfinding algorithms and heuristics in a simulated environment, inspired by the IEEE Micromouse competition
- Tools Used: C++, ROS2, Gazebo