Kate Aiken

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Education

Queens University — Kingston, ON
Bachelor of Applied Science, Studying Mechatronics and Robotics Engineering — *Sep. 2024 – Present*

Trafalgar Castle School — Whitby, ON
High School Diploma, Grade 6 – 12 — *Sep. 2017 – Jun 2024*

Experience

Systems Integration Director & Electrical Engineer — Sep 2024 – Present
aQuatonomous, Queens University — *Kingston, ON*

- Designed and built an Autonomous Surface Vehicle (ASV) to take to competition
- Connected software, electrical, hardware and communication systems on the ASV
- Manage a ground station and control the ASV's position through GPS direction or autonomy mode
- Set up the telemetry systems and perform calibration and tuning for an accurate performance

Optimist Race Coach & Sailing Instructor — May 2023 – Present
The Boulevard Club & Lake of Bays Sailing Club — *Toronto, ON*

- Designed and implemented spring and summer training programs
- Coached at local and international regattas
- Introduced and trained younger sailors to race
- Elevated skills of experienced sailors resulting in numerous fleet wins and podium placings
- Performed boat and sail maintenance including the set up of 6 brand new boats

Head Engineer — Sep 2021 – June 2024
MATE Robotics, Trafalgar Castle School — *Whitby, ON*

- Design and build a Remote Operated Vehicle (ROV) to perform underwater monitoring and protection tasks
- Worked with all sub teams to integrate all mechanical, hardware and electrical components
- Designed and built the electrical setup including circuit diagrams, soldering and testing
- Coded the custom printed controller in C++
- Assisted the pilot as the co-pilot to design a mission plan, review and adjust strategy and perform calculations based on data collection

Projects

Morse Code Sender and Receiver | *VS Code, C++, Circuit Design, Arduino* — Jan 2025 – Apr 2025

- Designed and coded a module to translate, send and receive morse code messages
- Integrated code with hardware including an LCD screen to as well as an audible and visual signal to output a received message

Automated Pre-Treatment Water System Prototype | *Arduino, C++, SolidWorks* — Sep 2024 – Dec 2024

- Wrote code in C++ for an Arduino to read sensors and control pumps to cycle water through a filter system
- Designed a mixing bar in SolidWorks to be 3D printed and integrated into the design
- Assembled, tested and troubleshot the final prototype

Fluidized Air Bed | *Mechanical Design, Testing and Troubleshooting* — Apr 2024 – May 2024

- Designed and built a fluidized air bed to demonstrate the physics and applications

Super Sink | *Mechanical Design, Research, Assembly and Testing* — Sep 2023 – Dec 2023

- Designed and built a sink that recycles the water to provide clean water with only electricity

Skills

Technical: Java, Python, C/C++, VHDL, SolidWorks, Arduino, Microsoft 365, Git, VS Code, Jupyter
Hands-on: Soldering, Circuit Design, PCB Design, Troubleshooting, System Design and Integration
Soft: Organization, Creativity, Problem Solving, Leadership, Mentoring, Curiosity, Troubleshooting