# Kate Aiken

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## Education

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

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

## Experience

**Systems Integration Director & Electrical Engineer** — Sept 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
- Managed a ground station and controlled 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** — Sept 2021 – June 2024
*MATE Robotics, Trafalgar Castle School* — *Whitby, ON*

- Designed and built 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

**Website** | *GitHub/Git, VS Code HTML, CSS, JavaScript, Graphics Design* — Jan 2026 - Present

- Designed and coded a website to showcase my experience and achievements from scratch
- Use the link at the top to view the website and view code through my GitHub, linked on the website

**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* — Sept 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* — Sept 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++, Assembly, HTML, CSS, Javascript, VHDL, SolidWorks, Arduino, Git, VS Code
**Hands-on**: Soldering, Circuit Design, PCB Design, Troubleshooting, System Design and Integration
**Soft**: Organization, Creativity, Problem Solving, Leadership, Mentoring, Curiosity, Troubleshooting