

Kate Aiken

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EDUCATION

Queens University

Bachelor of Applied Science, Studying Mechatronics and Robotics Engineering

Kingston, ON

Sept 2024 – Present

Trafalgar Castle School

High School Diploma, Grade 6 – 12

Whitby, ON

Sept 2017 – Jun 2024

EXPERIENCE

Systems Integration Director & Electrical Engineer

aQuatonomous, Queens University

Sept 2024 – Present

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

The Boulevard Club & Lake of Bays Sailing Club

May 2023 – Present

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

MATE Robotics, Trafalgar Castle School

Sept 2021 – June 2024

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

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 troubleshoot 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++, 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