

Robert Abraham

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EDUCATION

University of Toronto

Toronto, ON

Bachelor of Applied Science in Computer Engineering — Expected Graduation 2030

TECHNICAL SKILLS

- **CAD & Engineering Design:** Autodesk Fusion 360, Autodesk Inventor, Mechanical Design, Engineering Design, CAD, CNC/CAM, 3D Printing, Prototyping
- **Robotics & Systems:** ROS2, Autonomous Navigation, Robot Assembly, Hardware/Software Troubleshooting, System Testing, Data Collection & Analysis
- **Software & Automation:** Python, Git, GitHub, GitHub Actions/Workflows, HTML, YAML
- **Engineering Practices:** Technical Documentation, Design Reviews, Requirements Analysis, Project Management, Cross-Functional Collaboration

WORK EXPERIENCE

RBC

July 2026 - August 2026

DevOps Developer

Toronto, ON

- Developed a Python-based tool that automatically scans 150+ repositories biweekly, scoring engineering compliance across 20 different criteria, and identified configuration and development deficiencies
- Automated engineering assessment reports for 150+ repositories using Python, GitHub Actions, and an LLM-based summarization pipeline to surface the most critical repositories, saving approximately 325 hours per year of manual review time
- Sent automated general report emails and team-specific emails flagging the most critical repositories to the relevant teams and executives
- Tech stack: Python, HTML, YAML, GitHub Actions/Workflows

Boswin Robotics, Mississauga, ON

July 2024 - January 2026

Competitive Vex IQ Coach

August 2025 - January 2026

- Coached 13 junior robotics students in designing, building, and coding competition robots for the VEX IQ Challenge
- Guided students through mechanical assembly, programming, and hardware/software troubleshooting, translating complex engineering problems into clear breakdowns

Lead Summer Robotics Instructor

July - Aug 2024, July - Aug 2025

- Delivered hands-on robotics, mechanical design, and programming instruction to 8+ students per week, ages 9-14, across multiple summer programs

EXTRACURRICULAR EXPERIENCE / PROJECTS

Team 5225a - PiLons

August 2022 - June 2026

Team Captain

August 2023 - June 2025

- Led an 8-14 member multidisciplinary robotics team through design, prototyping, integration, testing, and competition preparation across 3 VEX Robotics Competition seasons
- Led design reviews and structured prototype testing, evaluating 100+ design iterations to identify failure modes and improve robot reliability
- Directed team operations including creating timelines, leading meetings, and providing cross-functional updates

Lead Mechanical Design Engineer

August 2023 - June 2026

- Designed custom mechanical systems for VEX competition robots in Fusion 360, translating competition requirements into buildable mechanisms through iterative CAD, prototyping, physical testing and data analysis.
- Manufactured and assembled 50+ custom mechanical assemblies over 4 years using CNC/CAM and 3D printing, selecting vex components and materials based on performance, reliability, and requirements, while keeping in mind weight and size restrictions
- Diagnosed mechanical failures during robot integration and testing, performing root-cause analysis and implementing corrective design changes to improve competition reliability

Robot Vacuum Project (Work in Progress)

Independent Project

- Designing and prototyping an autonomous mobile robot integrating ROS2, SLAM, obstacle sensing, and path planning for autonomous navigation and mapping
- Developing CAD models and physical prototypes for the chassis, water reservoir, and mopping mechanism, integrating mechanical and software subsystems with the goal of creating a flagship comparable robot vacuum

WRO (World Robotics Olympiad)

Completed

- Qualified for the WRO International Open in California after competing at the WRO National Championship in Montreal
- Engineered the world's first fully custom robot platform, featuring ESP32 and Teensy 4.1 microcontrollers, dead-wheel odometry with encoders, LiPo battery voltage regulation, camera-based object detection, and pneumatics