

# EANA HAN

✉ haneana41@gmail.com | 📞 +1 (647) 936-6173 | [in](#) eanahan | [🌐](#) portfolio

## EDUCATION

**UNIVERSITY OF WATERLOO** – Waterloo, ON, Canada

BASc in Honors Mechatronics Engineering with Computing Option | GPA: 3.95/4.0

Sept 2019 – April 2024

With Distinction – Dean's Honors List

- Relevant courses: Autonomous Mobile Robots | Robot Manipulators: Kinematics, Dynamics, Control | Multi-sensor Data Fusion | Multivariable Control Systems | Electromechanical Machine Design | Computer Structures & Real-Time Systems

## EXPERIENCE

**ATS CORPORATION (INDUSTRIAL AUTOMATION DIVISION)** – Cambridge, ON, Canada

*Controls Systems Software Designer*

May 2023 – Aug 2023

- Integrated and tested controls systems for automated manufacturing cells for GM's EV battery modules.
- Debugged Allen Bradley PLC ladder logic in Studio 5000 while ensuring code compliance with internal GM standards.
- Verified proper communications with the cell by reviewing electrical schematics, network diagrams, and mechanical drawings.
- Implemented FactoryTalk View HMI, set up Siemens support hardware, and conducted thorough I/O checks and safety testing.

*Mechanical Designer*

Jan 2023 – Apr 2023

- Conceptualized and designed mechanical components and assemblies for automated manufacturing systems in SolidWorks, focusing on optimizing designs for assembly efficiency and manufacturability.
- Collaborated with cross-functional teams to refine designs, ensuring alignment with customer requirements and performance.
- Utilized Upchain PLM and ERP software to support resource management and organization of shop floor layout.

**KIRCHHOFF AUTOMOTIVE** – Toronto, ON, Canada

*Manufacturing Engineering Specialist*

Jan 2022 – Apr 2022

- Conducted cycle-time studies of assembly line processes, implementing solutions that yielded annual cost savings of over \$20k.
- Optimized robot operations by refining weld parameters and improving robot movement sequences, enhancing line efficiency.
- Spearheaded a project to reduce weld defects by analyzing data trends and collaborating with the quality team, achieving significant cost reductions and a quick ROI.

**PRO WATTS, INC.** – Toronto, ON, Canada

*Electrical Design Assistant*

May 2021 – Aug 2021

- Developed electrical schematics for industrial applications using AutoCAD Electrical, ensuring accurate system designs.
- Conducted research and cost analysis for battery energy storage solutions, contributing to sustainable energy projects.

## PROJECTS

**ROBOTIC COMPOST DEHYDRATOR SYSTEM** – SolidWorks, Simulation, AutoCAD | [🌐 website](#)

Sept 2023 – April 2024

- Developed a robotic system to automate the composting process, including heat transfer calculations (thermodynamics simulations) and optimal design for an indoor appliance to encourage household composting.
- Prototyped and designed the 3D printed parts in SolidWorks, and laser cut parts in AutoCAD.
- Created electrical schematics in KiCad to connect an Arduino to multiple sensors and components through I2C.

**AUTONOMOUS ROBOT CONTROL STACK** – Python, ROS2, Gazebo, Ubuntu CLI

Sept 2023 – Dec 2023

- Developed Python code for ROS2 on Ubuntu to map and localize an area to perform autonomous path planning and traversal.
- Implemented PID control, Kalman Filter localization, and path planning algorithms such as A\* and RRT\*.
- Refined code through Gazebo and RViz simulations, and subsequent testing with TurtleBot in a physical environment.

**BALL AND BEAM CONTROLLER DESIGN** – MATLAB, Simulink, C++

Sept 2023 – Dec 2023

- Designed a PID controller to position a ball on a beam using signals control theory within MATLAB and Simulink.
- Implemented the controller with C++ in NI LabView, running on a CompactRIO PLC and physical ball-beam apparatus.

## SKILLS

**Software Tools:**

PLM & ERP Software | Rockwell Studio 5000 | Siemens TIA Portal | FactoryTalk View | Git | ROS2 | Simulink

**Modelling & Design:**

SolidWorks | Finite Element Analysis (FEA) & Thermal Analysis | 3D Printing | AutoCAD

**Languages & IDEs:**

C++ | C | Python | MATLAB | PLC Ladder Logic | VHDL | Assembly

**+ Interests:**

Sketching & Painting | Travel | Taekwondo (black belt) | Skateboard | Matcha