EANA HAN

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Eligible to work in: Canada, USA | Languages: English, Korean

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++, LabView *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

Modelling & Design: SolidWorks | 3D Printing | AutoCAD | KiCad | Finite Element Analysis (FEA) & Thermal Analysis | Siemens NX
Software Tools: Simulink | ROS2 | Arduino | LabView | Git PLM & ERP Software | Rockwell Studio 5000 | Ubuntu | Gazebo
Programming: Python | MATLAB | C++ | C | PLC Ladder Logic
+ Interests: Sketching & Painting | Travel | Taekwondo (black belt) | Skateboard | Matcha