Farhan Raza

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Summary

Determined Mechatronics Engineer with experience in software development and robotics. Critical thinking individual with knowledge about automation and embedded firmware development. Equipped with strong communication and complex problem-solving skills to overcome any task under a tight deadline.

- Proficient in using **AutoCAD,SolidWorks, Revit, Catia**
- Excellent written and verbal **communication skills**
- Mastery of **Word, Excel, PowerPoint**, and **Outlook**
- Able to read and **interpret engineering drawings**
- Statistical Analysis (**MATLAB, SAP**)
- Programming Languages (**C, C++, Python, SCL, SCF**)
- System analysis, modeling and simulation on **ROS**
- Experience with Control Systems (**PID, PLC, Robotics**)
- Experience with **algorithms** and **data structures**
- Familiarity developing on **Linux** and **RTOS**

Education

Bachelor of Mechanical Engineering specialization in Mechatronics **September 2016 – July 2021**

Ryerson University

1st place Innovation Design at Ryerson Engineering Competition (2020)

Professional Experience

Controls Engineer **January 2022 – Present**

Hydrafab

- Developed, programmed, tested on microcontrollers to control machinery using industrial communication protocols (CAN)
- Responsible for designing electrical, pneumatic, and fluid schematics on AutoCAD for various control systems
- Generated organized HMI screens for complex machinery which provides feedback
- Design and administer industrial Ethernet networks, HMI servers and SQL databases.
- Devising and building test fixtures, building tools and authoring automated scripts
- Managing multiple capital projects on ERP system (Navision), budgeting and building bill of materials
- Troubleshoot network and production issues and perform root-cause analysis
- Utilize RSlogix, Codesys, SIMATIC, or Omron software to program high level controls systems
- Create and execute testing and validation plans for new product development and production

Manufacturing Engineering Intern **August 2019 – September 2020**

Voith Hydro

- Implementation of **Lean Six Sigma** and **OPEX** techniques to improve performance in the plant by **6%**
- Responsible for coordinating various projects and monitoring cost aspects and timeline of the project
- Worked with **embedded systems** for machine control/monitoring and created automation scripts **Python and C++**
- Research and develop ideas for new concepts and designed 3D models using SolidWorks with **GD&T** and **DFM** techniques
- Developed and ensure proper documentation of high-level system and subsystem design

QA Engineer Intern **May 2019 – August 2019**

Uline

- Data mined **SQL** databases and **Excel** spreadsheets to track performance and identify trends for process improvement
- Configured and programmed **ABB/FANUC** industrial robots to provide adequate feedback for pick and place function
- Programming of Siemens PLC-based automated systems using **Intouch SCADA** and designed **HMI software** on FactoryTalk
- Performed design calculations and prepared basic sketches/drawings for products and equipment

Marine Engineering Systems Operator **July 2017 – Present**

Canadian Armed Forces

- Troubleshooted and debugged electronics hardware using multimeters, oscilloscopes, and signal analyzer
- Acquired working knowledge of pneumatics and PLC based control systems (**Allen-Bradley and Siemens S7**)
- Prepared electrical and pneumatic schematics and technical reports for use by management to ensure economical costs

Relevant Projects

Tesla Model S –Rear Frame CNC Clamping System **July 2022**

Contactor Work at Magna (Deco Automotive)

- Worked with small team to design clamping system for Tesla Model S Rear subframe assembly
- Designed system which checks if aluminum blocks are correctly placed and then machined together to create assembly
- Utilized sensors, microprocessors, and communication protocols to design high precision CNC mechanism.
- Incorporated Balluff I/O Ethernet/IP blocks with IFM controller and created detailed HMI screen to show simulation

Automated Stonemaker **August 2018 – January 2019**

Eastonmade

- Managed Project Cost and Schedule throughout the project life cycle
- Mentored junior project controls engineers and ensure the technical quality and timeliness of work
- Developed software for manual/automated control, implemented login system, and made database for custom parameters
- Incorporated wireless system to monitor data and upload changes from a remote machine

Liquid Powered Rocket Engine **August 2018 – January 2019**

Ryerson Propulsion Group

- Designing, manufacturing, and testing a small-scale liquid powered rocket engine
- Implementing individual **task delegation** for Junior Engineers and facilitating projects using
- Design and debugging of motion control, multi-axis controllers, actuators and servo motors, fieldbus communication modes
- Incorporated **embedded microcontroller programming** with C/C++ and tested hardware reliability

Autonomous Cart for Warehouse Applications **January 2021 – April 2021**

Capstone Project

- Designed an autonomous cart utilizing **ROS** and **Machine Learning** algorithms to follow the user to the desired destination
- Incorporated **Computer Vision and LIDAR** into path planning algorithm
- Developed software in **C++** for the system, reviewed code, tested and troubleshooted to achieve steady state response
- Obtained deep understanding of **sensors, control systems, and visual/imaging processing** used in robotics