Harsh Kachhia

3rd Year Mechatronics Engineering Student

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WORK EXPERIENCE

Mechatronics Engineer Co-op
Stackpole International Inc.

05/2022 - 09/2022 *Toronto, Canada*

Achievements/Tasks

- Created and implemented automotive-standard **Verification and Validation** testing procedures for mechatronic pumps, meeting IEC, ISO, and ASPICE requirements.
- Performed **benchmark testing** on mechatronic pumps, analyzed results in Excel/PowerPoint, and mapped key performance parameters with respect to environmental conditions and system requirements for future design improvements.
- Applied **GD&T** and reviewed 2D/3D mechanical drawings and manufacturer specification sheets to conduct tolerance analysis for pump parts, ensuring desired fit and functionality.
- Assisted warranty returns for production pump issues, supporting studies and examinations.

Customer Service Representative
Teleperformance Canada

05/2019 - 09/2019 *Toronto, Canada*

Achievements/Tasks

- Provided outstanding customer service by utilizing in-depth knowledge of products and services, resulting in a **95% satisfaction** rate among customers.
- Handled customer inquiries on merchandise stock, sales, pricing, and company changes while upselling special orders to **increase total sales by 10%**.
- Liaised with vendors to obtain back order availability, track future inventory shipments, and place special orders.

EDUCATION

B.Eng(Hons) Mechatronics Engineering
OntarioTech University

09/2020 - Present

Relevant Coursework:

- **Control Systems**, Machine Design, **Sensors & Instrumentation,** Kinematics & Dynamics of Machines, Fluid Mechanics, CAD, Thermodynamics & Heat Transfer, Solid Mechanics.
- **Actuators & Power Electronics**, Electronic Circuit Design, **Microprocessors & Digital Systems,** Object Oriented Programming, Probability & Statistics.
- President's List F2020 & W2021, Dean's List F2021 & W2022
- Lean **Six Sigma Yellow Belt** Certified

SKILLS

3D CAD Modeling & Simulation | C/C++, Java & Python | SOLIDWORKS, Siemens NX, AutoCAD & SketchUp | Research & Technical Report Writing | HTML, CSS & JS | MS Excel, PowerPoint & Word | MATLAB & Simulink | NI Multisim & LabVIEW | Benchmark Testing | Use of Multimeter, Oscilloscope & Spectrum Analyzer | Strong Written & Verbal Communication | Arduino | Lean Six Sigma | Xilinx FPGA | Team Leadership | Product Development | Data Visualization

PROJECT EXPERIENCE

Personal Portfolio Website (01/2022 - Present)

- **URL:** harshkachhia.github.io/
- Coded a responsive personal website to showcase the Mechanical, Electrical and Software projects completed, along with their respective files, code & working video.

Electric Vehicle Driving/Regenerative Braking Model (02/2023 - 04/2023)

- Designed and tested software simulation of actuators and power electronics using **MATLAB Simulink**, and developed a hardware solution using Arduino, PM DC Motor, and Buck Boost module to harness braking energy for battery recharging.

Microprocessor Digital Counter (03/2023 - 04/2023)

- Designed and developed a digital circuit system utilizing the **Xilinx FPGA** design tool and Verilog code to count the number of guests entering a restaurant's drive-thru for statistical analysis, incorporating various components such as logic gates, registers, storage elements, and counters, with the output displayed using a 7-segment display.

Smart Home Security System (03/2023 - 04/2023)

- Developed a miniature smart home security system with Arduino that utilizes multiple analog and digital sensors, such as photocell sensors to detect light changes, PSD sensors to detect motion, infrared sensors to detect interruptions, sound sensors to detect noise levels, and touch sensors to detect physical contact for different intrusion scenarios.

Autonomous Mechanical Rickshaw (11/2021 - 12/2021)

- Lead a team which designed and constructed a humanoid robot pulling a rickshaw carriage(Meccano Kit) that incorporated a gearbox mechanism to upscale torque from a 6V motor by 150% and a carriage with passive suspension using **DFMEA & 8D's methodolgy** .
- Modelled physical prototype in SOLIDWORKS to create a virtual model with an accurate motion analysis video.

Disc Static Simulation (10/2022 - 10/2022)

- Performed a static simulation using **Finite Element Analysis**(FEA) of a disc solid body in SOLIDWORKS using varying densities of mesh
- Produced a report which outlines the stress, displacement and strain on the solid body when a 150 N·m torque is applied about the disc's center