Jared Jackman

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SKILLS SUMMARY

Mechanical

- **Design:** SolidWorks, Inventor (3+ years), GD&T, 2D drawings, DFM (plastics +metals), DFMEA
- **CAE:** ANSYS – CFX, FEBio (FEA), MATLAB/ Simulink
- **Troubleshooting:** Root cause analysis, DOE

Software/Hardware

- **Languages:** Python (PyMC), HTML, C, C++
- **Controllers:** PLC, RaspberryPi, Arduino,
- **Prototyping:** soldering, breadboarding, 3D printing, laser cutting

RELEVANT EXPERIENCE

Ecobee Inc - *Consumer electronics / home automation* **Toronto, ON**

Manufacturing Engineer *Jan-April 2019*

- Redesigned components in a smart home device to ensure the PCB was fixed in the desired orientation
  - Proposed steel-safe design changes to **injection molded** plastics and designed a new die cut spacer
  - Released drawings and completed **DFMs** with manufactures in China; reducing tooling costs by **90%**
- Conducted **PFMEA** and revised the assembly process for a new IoT device; reduced cycle time **by 31%**
  - Designed an assembly fixture to install the thermal pad, spacer and PCB
- Independently designed an automated **PIR sensor** test stand for the new Ecobee Smart Thermostat
  - Programmed the test stand using **C++** with the Arduino microcontroller
- Worked with Electrical Engineers to conduct material selection for thermal pads to facilitate **IC** cooling
- Built a test rig and designed an experiment to replicate a UL pull test specification

Stackpole International – *Automotive fluid power systems* **Hamilton, ON**

Automation Designer *May-Aug 2018*

- Designed an automated oiling station to replace an existing station; reduced cycle time by **7 seconds**
- Used **SolidWorks** to design a spring-loaded end-of-Arm tool to prevent pump seals falling during assembly
- Designed a vacuum driven test station to detect 1 mm thick bushings in the inner gear rotor of pumps

Dynaplas Ltd. – *High precision injection molding / Automotive* **Toronto, ON**

Manufacturing Engineer *Sept-Dec 2017*

- Applied **DFMEA** to identify shortcomings in a go/no-go gauge as PCV tubes were shipped without O-rings
  - Redesigned the gauge which resulted in savings of **$0.10** per part as sorting was discontinued
- Designed a pneumatic swing chute to separate faulty and conforming parts as they are ejected from injection molding machines
- Implemented new robot enclosure designs which improved cell accessibility and reduced downtime

Linamar Corporation – *Precision powertrain solutions / Automotive* **Guelph, ON**

Quality Engineer *Jan-April 2017*

- Applied **root cause analysis** to determine cause of oversized journal diameters on differential cases
  - Conducted heat treatment studies to determine how tolerances should be adjusted to account for **thermal expansion**
- Revised process control plans in accordance with master drawings from OEM manufacturers
- Utilized statistical process control methods to conduct capability studies using **Minitab**
- Conducted P-PAP testing in accordance with ISO9000 and TS16949

AO Smith Canada - *Industrial & household hot water solutions* **Fergus, ON**

Lab Test Technician *May-Aug 2016*

- Conducted over **300** hours of R&D testing on heaters being developed for the Latin American market
- Implemented new burner configurations which reduced carbon monoxide levels in flue gases by **70%**
- Set up test apparatus and conducted **combustion** and hydrostatic tests on various water heater units

PERSONAL PROJECTS

Fall prevention Assist

- Designing wearable device for fall prevention and step initiation
- Working on the implementation of a torque-speed **PID** controller to drive actuation

Wi-Fi Enabled Test Stand (Ecobee)

- Designed a short adapter affording engineers direct access to debug ports for data acquisition
- Utilized **Esp 8266** Wi-Fi module to create a server and connect the Arduino to the internet
- Created a webpage with a slider using **HTML**, allowing the thermostat to be repositioned remotely

Stewart Platform

- Designed a 6 DOF hexapod linkage which was programmed to solve a maze
- Fabricated components using 3-D printing, laser cutting and machining

EDUCATION

B.A.Sc. Mechanical Engineering - Class of 2020

University of Waterloo

- ECE 493: Probabilistic Reasoning and Reinforcement Learning
- ME 566: Computational Fluid Dynamics
- ME 735: Microelectronics Packaging

INTEREST

- Aerospace: Urban Air Mobility, Piloting
- Design: Compliant machines, Industrial Design
- Sports: Basketball, Soccer
- Machine Learning: Robotics, Autonomous Vehicles