GURSHAN DEOL

gs2deol@uwaterloo.ca
shawn-deol.github.io

EXPERIENCE

Voxel8
Hardware Intern
May 2016 – Aug 2016

- Designed a pneumatic touchless cleaning system that uses high pressure air to clean epoxy
- Designed and programmed a proof of concept air pressure control system for a HAAS CNC
- Created electro-mechanical parts and fixtures to rapidly prototype and validate designs
- Redesigned manufacturing process for production parts to improve reliability and increase throughput
- Developed testing methodology for multiple production parts including solenoid valves and regulators

Ophardt Hygiene
Engineering Student
Sep 2015 – Dec 2015

- Designed and implemented a liquid level measuring device to troubleshoot overflowing bioreactors
- Created plastic and sheet metal testing fixtures to conduct fatigue life testing of mechanical pumps
- Designed and constructed an automatic pneumatic pump test fixture to validate reliability of pumps
- Designed and implemented a series of tests to measure and compare efficiency of small DC motors
- Performed cost estimation and generate bill of materials (BOM) for project assemblies

VASPAC
Engineering Intern
Jan 2015 – April 2015

- Developed scripts to display PLC sensor data such as temperature and pressure using VB.NET
- Designed the operating console U/I in VB.NET, RSView32 and Archestra
- Translated electrical and mechanical drawings into easily readable electronic versions
- Ran PLC simulations to test and validate design changes

SKILLS

Hardware
- Ability to prototype using Arduino, Raspberry Pi, Beaglebone and Intel Edison platforms
- Experience in using oscilloscopes, soldering tools, microscopes and other lab tools

CAD
- SolidWorks, Autodesk Fusion 360, Autodesk Inventor, SolidWorks Simulation

Software
- Proficient in the use of MATLAB, LabVIEW, Ansys, Photoshop, Illustrator, MCS ADAMS, Microsoft Office

Languages
- Familiar with C++, Processing, Python, GCODE, C, Java

Manufacturing
- GD&T, DFM/DFA, CNC/manual mill, Laser cutting, 3D Printing, hand tools

EDUCATION

University of Waterloo
Sep 2013 – May 2018

- B.S. Mechanical Engineering
- Graduating May 2018
- Specialized option in Engineering Biomechanics

PROJECTS

Handheld Pi
- Designed and fabricated a portable Raspberry Pi gaming console from using spare parts
- Designed, modeled and toleranced all components in SolidWorks and 3D Printed most parts
- Programmed an Arduino Micro as a HID game controller which allows for user input to the Pi

Delta Printer
- Designing and currently constructing a delta robot style 3D printer based off the Kossel Mini
- Designed a magnetic ball-socket effector head and roller carriage for V-slot aluminum extrudes

3D Printed HMI
- Designed and fabricated a fully 3D printed Human Input Device using the Voxel8 printer
- The metamaterial device uses thermoplastic 2D springs to close circuits created from silver ink
- The device uses an embedded Arduino Micro to communicate as a HID and supports 12 buttons
- The device is proof of concept that shows how a Voxel8 printer can create custom HIDs at a low cost

Exoskeleton Glove
- Responsible for the mechanical design of the underactuated fingers and the linear motor mount

Fall Detection Belt
- Wrote the python script to determine when a fall occurred and what actions to take.