# Gurshan Deol

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## QUALIFICATIONS

- Highly proficient in the use of SolidWorks to design plastic and metal parts including DFM and DFA
- Proficient in MATLAB, C++, LabVIEW, GCODE and Python
- Past experience in product design and integrating wireless sensors into mechanical enclosures
- Experience in hardware design using development platforms such as Arduino and Raspberry Pi
- Past experience in managing multiple technical projects from start finish
- Capable in the use of lab equipment and prototyping tools (Laser cutting, 3D Printing, CNCing)
- Knowledge of design principles and analysis (static mechanics, materials, finite element analysis)

## WORK EXPERIENCE

### Voxel8, Cambridge, MA — Summer 2016
**Hardware Intern**

- 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 R&D, Beamsville, ON — Fall 2015
**Product Engineering Intern**

- 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, Hamilton, ON — Winter 2015
**Systems Engineer Intern**

- 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

## EDUCATION

### University of Waterloo — Class of 2018
**Mechanical Engineering, Option in Biomechanics**

## PROJECTS

**Portable Raspberry Pi Gaming Console**

- 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-robot 3D 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 Human Input Device**

- 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 Hand for improved grip strength**

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