

# PREET SHAH

p46shah@uwaterloo.ca | (403)926-3099 | [linkedin.com/in/preet-shah](https://www.linkedin.com/in/preet-shah) | [github.com/preetshah123](https://github.com/preetshah123) | <https://preetshah123.github.io>

## Skills

**CAD Programs:** AutoCAD - SolidWorks - Catia - AutoDesk Inventor - Star CCM+ - NX

**Software Programs:** PLC - MATLAB - MS Excel - RobotStudio - CMM - VBA - C++ - Python - HTML5 - JavaScript - Bootstrap

**Machining skills:** Lathes - Electric Saws - Drill Press - Soldering

## Work Experience

### Manufacturing Engineering Intern · Magna International - Modatek Systems Sept 2018 - Dec 2018

- \* **Designed** and **analyzed** a current and an ideal **value stream map** of vendor locations to help **streamline** truck routes, **decrease time, cost** and **floor space**, spent on additional inventory each week, by approximately **10%**
- \* Responsible for **updating material flow** and **handling** for future **Ford Bronco line**, on **AutoCAD**, by **communicating** with **senior engineers** on changes made to part numbers and bin densities
- \* Collected and evaluated **cycle times** of robot weld cells on new **Ford Ranger line** and provided methods to **decrease takt time** by over **four seconds** by **increasing clamping speed, zone separations, and buffer racks**
- \* **Planned** and **initiated procedure** to gather **data** for **capital redeployment** of an exiting line, as to **save Magna** over **one million dollars** by reusing old equipment in other plants across the globe

### Mechanical Design Engineering Intern · Linamar - Innovation HUB Jan 2018 - Apr 2018

- \* **Responsible** for **modelling dunnage** and **guide assembly** within **SolidWorks**, which were placed within a **3D layout of a fully automated cell** and used to **view** and **improve precise robot movements**
- \* **Implemented DFM** and **DFA** principles to ensure **optimization** of **fabrication, cost, and quality** of **guide assembly**
- \* Performed **Finite Element Analysis** on dunnage to **visualize bending stress** when being lifted by robot
- \* Assisted in **devising** and **prototyping** an **end of arm tool** for an **ABB IRB 2600 robot**, that can **perform multiple tasks**
- \* **Strengthened** ability in **Python** and **RobotStudio** by **coding** and **testing** various programs for **beta-level ABB robots**
- \* **Enhanced GD&T skills** by updating and correcting **official drawings** of **machine assemblies** on **SolidWorks**

### Procurement Engineering Intern · Elite Machining Ltd May 2017 - Aug 2017

- \* **Procured** precise tools and parts required by the machinists
- \* Trained in different **Quality Control** methods and **ensuring correct GD&T labelling** on mechanical drawings
- \* **Created programs** for the **Coordinate Measuring Machine** that **measures dimensions** of features on machined parts

### Aerodynamics Team Member · UWaterloo Formula Electric Design Team Oct 2016 - Present

- \* **Conceptualized** and assisted in **implementing** a new **mounting design** for the **front and rear wings** on **SolidWorks**
- \* Utilized **Star CCM+** to **simulate air flow** and determine areas of **high and low pressure** on various components of the car to better understand the **downforce generated** and **direction of air flow**
- \* **Assisted** electrical team when **designing embedded processors** to understand how they will **control aerodynamic functions** of the car

## Personal Projects

### Formula 1 Front Wing Model · SolidWorks Aug 2018 - Present

- \* **Conducting research** to **design** a front wing that will **increase downforce** but **minimize drag** by using **less components**
- \* **Created technical drawings** based on different **designs** and **layouts** of wing structures
- \* Utilizing the **surfacing, lofting, and other features** within **SolidWorks** to **model all components** and **elements** of the wing
- \* **Conducting CFD simulations** using **SolidWorks** to **analyze air flow** around the front wing, and **compare** the data collected to **determine the optimal wing structure**

### Mechatronic System Designer · SolidWorks/AutoCAD/C++/RobotC Jan 2017 - May 2017

- \* Collaborated with four members to **program** and **build a Lego NXT robot** to investigate **efficient automation of forklifts**
- \* **Devised mechanical chassis design** of the robot, **3D printed functional parts, manufactured prototype** robot using **LEGO parts and sensors**, and assisted in **compiling** and **debugging** code in **C++** and **RobotC**

## Education

**University of Waterloo** - Bachelors of Applied Science, Mechanical Engineering - 3<sup>rd</sup> Year

**Class of 2021**