

Parth Patel

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EDUCATION

University of Waterloo – Waterloo, ON December 2021 (Expected)
Master of Engineering in Mechanical Engineering

Ontario Tech University – Oshawa, ON April 2020
Bachelor of Engineering in Mechanical Engineering (Mechatronics Specialization); **3.92 CGPA** (President's List)

WORK EXPERIENCE

Ontario Power Generation (OPG) – Pickering, ON May 2018 – August 2019
Mechanical Engineering Intern

- Designed a custom mounting bracket and radiation shield using **3D CAD** and helped write the technical specification sheet used to procure the parts from external vendors
- Developed an **Excel Macro** which automatically finds meeting deliverables and informed the responsible engineer; **90% faster** than the older method which required manual searching and sending emails individually
- Coordinated with suppliers to find replacements for obsolete parts and provided engineering approval after analyzing critical characteristics between the parts to verify there was no impact to existing equipment or operating conditions
- Revised engineering drawings, updated bill of materials, and wrote installation instructions to replace equipment in the field in accordance with applicable codes and standards

Ontario Tech University – Oshawa, ON September 2017 – April 2018
3D Printer Design Assistant

- Saved Durham College over \$2000** in equipment cost by designing 3D printable models to replace real PCA pumps
- Attained a **10% reduction** in print failure rates by reviewing all parts and assemblies in NX, SolidWorks, or Cura for common points of failure before printing and offered effective solutions to the customer

VOLUNTEER EXPERIENCE

Woburn Robotics (FIRST Robotics and VEX Robotics) – Scarborough, ON July 2015 – Present
Mechanical Mentor

- Used **SolidWorks** for advanced part modeling and complex assemblies with appropriate tolerance to ease manufacturing
- Manufactured parts and built prototypes using wood, box tubing and sheet metal to test concepts and finalize design
- Mentored 50+ students to design and build 10 unique robots to compete in worldwide competitions

FEATURED PROJECTS | parthjp.com/#projects

Sustainable Powered Snow/Ice Melting System (Capstone) – Control System Lead

- Built a 2ft x 2ft prototype of a snow and ice melting system powered using a solar panel and lithium-ion battery
- Wrote the **Arduino code** so the system can operate autonomously or manually through a phone app via wi-fi
- Built a CAD model of the system using **NX**, created **mechanical drafts** for piping layout, and **performed Finite Element Analysis (FEA)** on the tubing embedded in the concrete to verify the tubing can withstand load conditions

Autonomous Maze Solving Robot – Team Lead

- Modeled a robot using **NX** to navigate a two-floor maze using the shortest path, move around obstacles, correct errors using sensor feedback, and locate a Lego Miner at the end.
- Focused on **Design for Manufacturing** and **Design for Assembly** to **3D print** and build multiple prototypes quickly; tested various prototypes to ensure they met design requirements and adjusted final design based on test results
- Performed a **Failure Mode and Effect Analysis (FMEA)** on robot subsystems to prevent failures and increase reliability

ACHIEVEMENTS

National Design League (Ontario Tech Designathon) – 1st place in our challenge, top 4 overall

First Robotics Competition (FRC) – 1 x World Quarter-Finalist, 1 x Provincial Semi-Finalist, 2 x Regional Winner

SKILLS

Certifications: Certified SolidWorks Associate (CSWA) – Mechanical Design

Programs: SolidWorks, NX, Java, C++, Matlab

Manufacturing: Rapid Prototyping (ex. 3D Printing and CNC Machine), Basic Machine Shop