Parth Patel

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SUMMARY OF QUALIFICATIONS

- Proficient with **NX and SolidWorks** for designing parts and creating assemblies of complex mechatronic systems
- Prior experience with detailed part design and **Design for Manufacturing/Assembly** from 5 years of robotics experience
- Strong knowledge of materials and design guidelines for metal parts (Sheet metal and Box tubing) and 3D printed plastics
- 16 months of internship experience leading projects and solving time-sensitive problems independently or in a team

EDUCATION

Master of Engineering in Mechanical Engineering *December 2021 (Expected)*
University of Waterloo | Waterloo, ON ***CGPA: 4.0/4.0***
- Graduate Diploma in Design (**Product Development**)
- Relevant courses: Fatigue Analysis and Design, Advanced Design Engineering, and Additive Manufacturing Design

Bachelor of Engineering in Mechanical Engineering April 2020
Ontario Tech University | Oshawa, ON ***CGPA: 3.76/4.0***
- Relevant courses: Kinematics and Dynamics of Machines, Manufacturing and Production Processes, and Machine Design

WORK EXPERIENCE

Mechanical Engineering Intern *May 2018 – August 2019*
Ontario Power Generation (OPG) | Pickering, ON
- Saved OPG over **$10000** by leading the 3D design process of a custom mounting bracket used in a radioactive area
- Expediated a weekly process by **90%** using an **Excel Macro** to automatically find outstanding deliverables for 9 teams
- Coordinated with vendors to replace obsolete parts and approved new parts for use after verifying critical characteristics
- Revised **mechanical drawings, electrical schematics/layouts**, and **bill of materials** for modifications in the field

3D Printer Design Assistant *September 2017 – April 2018*
Ontario Tech University | Oshawa, ON
- Saved Durham College over **$2000** in equipment cost by designing 3D printable models to replace real PCA pumps
- Reduced daily failed print rate by **10%** by reviewing customer designs to verify they were feasible to manufacture using a 3D printer and revised designs to reduce print time and post-processing time while improving overall part strength

LEADERSHIP EXPERIENCE

Mechanical Mentor *July 2015 – Present*
Woburn Robotics (FIRST Robotics and VEX Robotics) | Scarborough, ON
- Mentored 50+ students to design in SolidWorks and build 10+ unique robots to compete in worldwide competitions
- Designed different robot mechanisms made from aluminum, stainless steel, and plastics with appropriate tolerances
- Manufactured custom-designed parts using a CNC machine and a 3D printer to build proof-of-concept prototypes

FEATURED PROJECTS | *parthjp.com/#projects*

Sustainably Powered Snow/Ice Melting System (Capstone) | Control System Lead
- Constructed 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** to allow the system to operate autonomously or manually through a phone app via wi-fi
- Performed FEA on the piping model to prove that the system maintained its factor of safety under maximum load

Autonomous Maze Solving Robot (Top 3 out of 11 Teams) | Team Lead
- Designed a robot using **NX** to navigate a two-floor maze using the shortest path, move around obstacles, and correct errors
- Created a fully 3D printable design with correct tolerances to assemble all the parts using only press-fits to ease prototyping
- 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 – 1 x World Quarter-finalist, 1 x Provincial Semi-finalist, 2 x Regional Winner

SKILLS

3D CAD: NX (4 years), SolidWorks (5+ years, **Certified SolidWorks Associate – Mechanical Design**)
Programming: Java, C++, MATLAB
Manufacturing: Rapid Prototyping (3D Printing and CNC Machine), Basic Machine Shop