

Sudip Karmacharya

MECHANICAL ENGINEER · UNIVERSITY OF WATERLOO

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Experience Summary

- **Product Development:** Conceptualization, Design Analysis, Testing, Validation, Manufacturing, Assembly
- **Fabrication Methods:** FFF/FDM 3D Printing, SLA 3D Printing, CNC, Laser Cutters, Mills, Lathes
- **CAD/CAM:** SolidWorks, Creo, CATIA, MasterCAM, AutoCAD
- **Analysis Tools:** SolidWorks Simulations, Machine Learning, ANSYS FEA
- **Programming Languages:** MATLAB, Python, C++, C, Octave

Education

University of Waterloo

CANDIDATE FOR B.A.SC IN MECHANICAL ENGINEERING, HONOURS

- Cumulative **GPA of 3.7/4.0**
- **Activities and Societies:** UW Additive Club, Waterloo Engineering Society First Year Mentorship Program Mentor, Mech Peer Mentorship Program Mentor
- **Technical Electives:** Numerical Control of Machine Tools | Finite Element Methods | Autonomous Mobile Robots | Non-metallic and Composite Materials | Computer-Aided Design | Robot Manipulators: Kinematics, Dynamics and Control | Advanced Dynamics and Vibrations | Manufacturing Processes

Waterloo, Ontario, Canada

Sep. 2016 - Exp. May 2021

Work Experience

Curtiss-Wright Defense Solutions

MECHANICAL ENGINEER (DYNAMIC ANALYSIS)

- Simulated and analyzed the dynamics of a helicopter docked on a ship deck at various sea and wind conditions using **Numerical Analysis**
- Organised, developed and conducted tests for the implementation of new batteries for the helicopter docking and handling system; ensured that the product reached the specification required
- Generated CAD models, assemblies and drawings of the next generation test rigs for the helicopter docking systems using **Creo**

Mississauga, Ontario, Canada

Sep. 2019 - Dec. 2019

Besnovo Inc.

MECHANICAL DESIGNER

- Redesigned the existing Cable Management System to supply power to the Automated Guided Vehicle (AGV)
 - New design was **25% cheaper, 49% smaller** and **38% lighter**, with a **100% increase** in the cable capacity
- Conducted **Finite Element Analysis** tests on various parts and assemblies to optimize weight and stress levels
- Created CAD models, assemblies and drawings of systems of varying sizes using **SolidWorks**
- Integrated various large components onto a 6-meter-long Automated Guided Vehicle, ensuring safety and urgency

Ajax, Ontario, Canada

Jan. 2019 - Apr. 2019

Waterloo Aerial Robotics Group (WARG)

UNMANNED AERIAL VEHICLE (UAV) DESIGNER

- Designed various parts and assemblies using **SolidWorks** and **AutoCAD**, with a focus on **Design for Manufacturing**
- Used various fabrication methods, namely: **laser cutting, machining** and, **FFF/FDM** and **SLA** 3D printing
- Conducted **Finite Element Analysis** tests on various parts and assemblies to optimize weight and stress

Waterloo, Ontario, Canada

June 2018 - Aug. 2018

University of Waterloo

3D PRINT CENTRE ENGINEERING ASSISTANT

- Operated and maintained production grade **Fortus 360mc FFF/FDM 3D printers**
- Designed an enclosure for NaOH support remover using **CATIA**, resulting in a safer workspace
- **Improved operational efficiency** by creating an online order form, resulting in a decrease in order-to-production time by **60%**

Waterloo, Ontario, Canada

Sep. 2017 - Dec. 2017

Projects

Predicting 3D Printing Material Using Machine Learning

Jun. 2020 - Aug. 2020

- Performed data pre-processing including converting object data-type to integers data-type, standardization, feature scaling and data-splitting
- Trained and validated Linear Regression and Decision Tree Regression models in order to choose the best model for predicting material used for 3D Printing based on print settings