Sudip Karmacharya

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Summary of Skills

- **CAD/CAM:** SolidWorks, Creo, CATIA, AutoCAD, MasterCAM
- **Analysis Tools:** Abaqus, ANSYS FEA, Machine Learning, Simulink
- **Programming Languages:** MATLAB, Python, G-code, C++, Octave
- **Fabrication Methods:** FFF/FDM 3D Printing, SLA 3D Printing, CNC Machining, Laser Cutting, Mills, Lathes
- **Interests:** Painting, Soccer, Reading Books, Chess, Making Tiramisu

Work Experience

KA Imaging *May 2020 - Aug. 2020*
Mechanical Designer [Intern]
- Designed, and created CAD models and drawings for the new generation of X-ray detectors using SolidWorks
- Tracked and updated the product design requirement verification tests, for X-ray detector using Jira and Confluence
- Evaluated 4 test facilities for product verification tests considering cost and distance from the facility

Curtiss-Wright Defense Solutions *Sept. 2019 - Dec. 2019*
Mechanical Engineer (Dynamic Analysis) [Intern]
- Simulated and analyzed the dynamics of a helicopter docked on a ship deck for 50,000+ cases at various sea and wind conditions in order to determine safe landing and securement conditions
- Designed and created CAD models for the next generation of the helicopter docking systems test rig using Creo
- Expedited development and implementation of outstanding battery tests for helicopter docking and handling systems **saving over 3 million dollars**

Besnovo Inc. *Jan. 2019 - Apr. 2019*
Mechanical Designer [Intern]
- Redesigned existing Cable Management System to supply power to a 6 meter long 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
- Organized and supervised integration of 15+ large and delicate components (including a laser and robot arm) onto a AGV

University of Waterloo *June 2018 - Aug. 2018*
Unmanned Aerial Vehicle (UAV) Designer [Intern]
- Independently drove design process to create 50+ parts and assemblies using SolidWorks and AutoCAD
- Conducted Finite Element Analysis tests on various parts and assemblies to **decrease the weight by up to 15%**
- Designed parts with a focus on DFM for fabrication methods: laser cutting, machining, and FFF/FDM and SLA 3D printing

Education

University of Waterloo *Sept. 2016 - Exp. April 2021*
Bachelor of Applied Science in Mechanical Engineering, Honours
- Cumulative **GPA of 3.7/4.0**

Projects

Fourth Year Design Project: Arctic Aeroponics System *Sept. 2020 - Present*
- Led mechanical design process to create 50+ parts and assemblies for extreme weather conditions
- Utilized Finite Element Analysis on various critical parts to remove excess material, **decreasing the weight by up to 90%**

Side Project: Predictive Machine Learning Model for 3D Printing Material *Jun. 2020 - Aug. 2020*
- Performed data pre-processing: converting object to integers, standardization, feature scaling and data-splitting
- Trained and validated Linear Regression and Decision Tree Regression models in order to choose the best model
- Implemented the model resulting in the model predicting the validation set with an **accuracy of 94.4%**