Rahul Shagrithaya

Mechanical and Manufacturing Engineering Co-op Student

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HIGHLIGHTS OF QUALIFICATIONS

- Currently enrolled in level 1 of the Masters in Manufacturing Engineering program and looking for a 4, 8 or 12 months Co-op position
- Experience in designing, modelling, drafting, composite layup, structural analysis, fluid analysis, and programming
- Exceptional teamwork and leadership skills demonstrated as Structures Subsystem Engineer in the Society of Automotive Engineers (SAE) student project team
- Coursework in Automation and Robotics, Artificial Intelligence (AI) and Machine Learning (ML), Mechanical Design, Finite Element Methods (FEM), Computer-Aided Design and Machining (CAD-CAM)

EDUCATION

MEng Manufacturing Engineering **Expected graduation April 2023**
McMaster University, Hamilton ON
- Emphasis on Manufacturing Automation and Industry 4.0
- Relevant courses: Advanced Robotics and Automation, Artificial Intelligence (AI) and Machine Learning (ML)

BTech Mechanical Engineering **Graduated July 2021**
Manipal Institute of Technology, Manipal, India
- Cumulative grade-point average of 8.30 on a 10.0 scale
- Received a minor in Business Management
- Relevant courses: Computer-Aided Mechanical Drawing, Computer-Aided Design and Machining (CAD-CAM), Finite Element Methods (FEM)

WORK EXPERIENCE

Research and Development Intern **August 2019 – December 2019**
Curiouz TechLabs, Manipal Institute of Technology − Manipal, India
- Collaborated with 4 doctors and a professor to design tumour-removal Endoscopic scissors to improve diagnosis of small visible tumours in bladders
- Collected and researched details of 2 available endoscopic scissors to implement an improved and safer design
- Designed and assembled more than 15 CAD Models in Siemens NX and rendered images, videos, and illustrations in KeyShot that were used for documentation and presentation
- Participated in monthly meetings with the doctors to communicate updates and discuss possible improvements
- Patent published June 17, 2021, “A scissors-needle system for intra-cavitary hydro-dissection and excision of tissues,” WO/2021/116776

Research and Development Intern **June 2019**
MLBE Laboratory, Cracow University of Technology − Kraków, Poland
- Assisted in the development of environmentally friendly and sustainable systems to minimize energy consumption
- Designed a 600mm diameter heat exchanger in Fusion360 that could heat water using hot kitchen air by 10°C and analyzed the heat and fluid flow in Ansys Fluent
- Gained an understanding of the technical, economic, social, and environmental concepts of sustainable living

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RELEVANT PROJECTS

Performance analysis **January 2021 – July 2021**

- Analyzed high-speed three-lobe bearings using Fluid Structure Interaction (FSI) in Ansys Workbench considering 9 different properties to compare the structural strength of all combinations
- Simulated 24 combinations of bearings with various eccentricities and materials to collect 3 different physical properties of the bearing when it is subjected to high-speed rotation

Finite Element Method (FEM) solver and assembly line balancer software **January 2021 – April 2021**

- Programmed 3 software to solve FEM problems in beams and trusses, and production assembly line balancing problems to minimize bottlenecks and increase production
- Developed Graphical User Interfaces (GUIs) using python to receive the problem data from the user and showcase the results in a user-friendly format like graphs and tables

Micro-class Unmanned Aerial Vehicle (UAV) **April 2018 – November 2019**

- Collaborated with a team of 38 to research high payload carrying and high strength to weight ratio UAV designs
- Fabricated 9 designs and conducted 117 flying tests to develop a 550g, 1.2m wingspan fixed-wing aircraft that can be assembled in less than 90 seconds and carry 1500g of payload
- Developed CAD parts in Fusion360 and drafted CAD drawings of aircraft parts in AutoCAD that were sent for laser-cutting
- Finished 5th in the Society of Automotive Engineers (SAE) Aero Design East 2019 Collegiate Design Series hosted by Lockheed Martin in the micro-class category in Texas, USA

SKILLS

Software: Siemens NX, Fusion 360, CATIA, AutoCAD, Ansys Workbench (Structural and Fluent)
Programming: Python, C++
Languages: English, Hindi

EXTRACURRICULAR ACTIVITIES

Senior subsystem member – SAE Student Project Team **May 2019 – November 2019**

- Interviewed, selected, and supervised 1st-year undergraduate students to choose 20 competent members for the team out of 75 interested students
- Trained and oversaw 6 students in the structures subsystem working on designing and fabrication of unmanned aircraft components

Photographer – Cultural and Sports Fest **March 2019**

- Photographed and post-processed over 100 photos of 4 events which were used in social media and advertisements of the festival

Event organizer – Technical Fest **October 2018**

- Managed about 50 event participants and coordinated with 8 event heads to aid in the smooth running of an Unmanned Aerial Vehicle flying competition
- Informed and ensured participants followed rules and safety protocols throughout the event