Rahul Shagrithaya

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HIGHLIGHTS OF QUALIFICATIONS

- Graduating with a Master of Engineering (MEng) in Manufacturing Engineering degree in December 2023
- Hands-on experience in 3D CAD modelling, mechanical designing, programming, prototyping, engineering drawing, and project management while working in fast-paced, multi-disciplinary team environments
- Exceptional teamwork and leadership skills demonstrated as Structures Mechanical sub-system Engineer in the Unmanned Aerial Vehicle (UAV) Society of Automotive Engineers (SAE) student research project team
- Coursework in Computer-Aided Design and Machining (CAD-CAM), Mechanical Design, Rapid Prototyping, Finite Element Methods, Operations and Systems Management, Project Management

EDUCATION

Master of Engineering, Manufacturing Engineering **January 2022 - Graduation December 2023**
McMaster University *Hamilton, Ontario*

- Cumulative GPA of 11.4 on a 12.0 scale
- Relevant courses: Artificial Intelligence and Machine Learning (AI/ML), Rapid Prototyping, Practical Project Management

Bachelor of Technology, Mechanical Engineering, Minor in Business Management **Graduated July 2021**
Manipal Institute of Technology *Manipal, India*

- Cumulative GPA of 8.30 on a 10.0 scale
- Relevant courses: Problem Solving Using Computers, Computer-Aided Design and Machining (CAD-CAM), Mechanical Design, Finite Element Methods, Operations and Systems Management

WORK EXPERIENCE

Innovation Program Management Assistant Co-op **August 2022 - Present**
Kinectrics Inc. (Former Ontario Hydro Research and Development) *Toronto, Ontario*

- Assist in testing, enhancing, and developing business cases for Boston Dynamics SPOT robot for remote inspection & maintenance of nuclear power plants
- Led 2 successful drone demonstrations for developing nuclear and non-nuclear inspection & maintenance business cases ensuring safety through JSA (Job Safety Analysis) and PJB (Pre-Job Brief)
- Analyzed CNSC's nuclear licensing & regulations to summarize critical insights from CNSC meetings on CNL to develop a whitepaper on approx. 20 nuclear licenses used by CNL
- Researched and communicated with 9 engineering teams to filter through 2,000+ technologies from US national laboratories to find potential revenue-generating opportunities for the company
- Programmed a VBA (Visual Basic for Applications) software and dashboard to monitor 135+ NPD (New Product Development) projects' progress and revenue forecast for the next 5 years

Research and Development Intern **August 2019 – December 2019**
Curiouz TechLabs, Manipal Institute of Technology *Manipal, India*

- Partnered and collaborated with 4 doctors and a professor to deliver a tumour-removal Endoscopic scissors design to improve the diagnosis of small visible tumours in bladders
- Identified and investigated 2 existing endoscopic scissors to propose and implement an updated, improved, and safer design
- Designed and assembled more than 15 CAD models in Siemens NX and created rendered images, videos, and illustrations in KeyShot that were used for written reports, documentation, diagrams, and presentations
- Scheduled and attended monthly meetings with the doctors to communicate technical information, gather their feedback, and discuss possible technical solutions to meet the requirements of the project
- Patent published June 17, 2021, "A scissors-needle system for intra-cavitary hydro-dissection and excision of tissues," WO/2021/116776

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WORK EXPERIENCE (Cont.)

Research and Development Intern **June 2019**
MLBE Laboratory, Cracow University of Technology *Krakow, Poland*

- Assisted in the development of environmentally friendly and sustainable systems to minimize the use of renewable energy consumption
- Designed a 600 mm 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 emerging technical, economic, social, and environmental developments of sustainable living

SKILLS

Software: Siemens NX, CATIA, SOLIDWORKS, Fusion 360, AutoCAD
Programming: Python, VBA, SQLite, NumPy, Matplotlib, OpenPyXL, GitHub

RELEVANT PROJECTS

Fluid Structure Performance Analysis **January 2021 – July 2021**

- Analyzed high-speed three-lobe bearings using Fluid Structure Interaction (FSI) in Ansys Workbench and Ansys Fluent considering 9 different properties to compare the structural strength of all combinations
- Simulated 24 combinations of bearings with various eccentricities and materials to evaluate 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 in Python using NumPy and SQLite to automate FEM problems in beams and trusses, and solve production assembly line balancing problems for process improvements and minimize bottlenecks
- Developed high-quality graphical user interfaces (GUIs) using Dear PyGui on Windows to receive the problem data from the user and present the results in a user-friendly format like graphs and tables

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

- Collaborated with a multi-disciplinary team of 38 to research high payload carrying capacity and high strength-to-weight ratio but cost-efficient UAV designs
- Conceptualized and fabricated 9 designs and conducted 117 flying tests to develop a 550g, 1.2m wingspan fixed-wing unmanned aircraft that can be assembled in less than 90 seconds and carry 1500g of payload
- Maintained an accurate and up to date Excel sheet documentation of technical data and reports, modelled UAV designs in Fusion360, and drafted drawings of aircraft parts in AutoCAD that were sent for laser-cutting
- Finished 5th against 25 teams 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

EXTRACURRICULAR ACTIVITIES

Senior Subsystem Member – SAE Student Project Team **May 2019 – November 2019**

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

Tech Fest Organizer – University Technical Fest Competition **October 2018**

- Managed approximately 60 people to successfully coordinated a 2-day UAV Flying competition event