




Rahul Shagrithaya, M.Eng.

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WORK EXPERIENCE

Design Engineer/Analyst – Nuclear Design Engineering & Sites

January 2024 – Present

Kinectrics

Toronto, Ontario

- Designing test equipment and layout to conduct a vault pressurization and depressurization test on Bruce Power Unit 5 to support Major Component Replacement (MCR) project
- Supporting P2030 projects for Bruce A and B reactor power uprates to 100% full power to investigate opportunities for upgrading the Boiler Feedwater, Main Condensate, and Moisture Separator Systems
- Developing a design standard for Bruce Power for non-welded pipe fittings for non-nuclear Class 6 piping designations to allow the use of cold fittings without an engineering change process
- Providing Technical Team Lead and Project Management support for various projects to coordinate technical and management tasks
- ASME Section III Division 1 qualified with experience in Bruce Power Engineering Change Processes and design quality standards

Innovation Program Management Assistant (Co-op)

August 2022 – August 2023

Kinectrics

Toronto, Ontario

- Analyzed CNSC's nuclear licensing & regulations to summarize critical insights from CNSC meetings on CNL to assist in developing a whitepaper on 10 nuclear licenses held by CNL
- Assisted 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 Job Safety Analyses (JSA) and Pre-Job Briefs (PJB)
- 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 Visual Basic for Applications (VBA) software and dashboard to monitor 135+ New Product Development (NPD) projects' progress and revenue forecast for the next 5 years

Research and Development Intern

August 2019 – December 2019

Curious 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

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

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SKILLS

Software: Siemens NX, CATIA, Fusion 360, AutoCAD, Bruce Power Maximo

Programming: Python, C++, Visual Basic for Applications (VBA)

EDUCATION

Master of Engineering (M.Eng.)

Manufacturing Engineering

McMaster University

- Cumulative GPA of 11.56 on a 12.0 scale

Graduated 2023

Hamilton, Ontario

Bachelor of Technology (B.Tech.)

Mechanical Engineering, Minor in Business Management

Manipal Institute of Technology

- Cumulative GPA of 8.30 on a 10.0 scale

Graduated 2021

Manipal, India

RELEVANT PROJECTS

Fluid Structure Performance Analysis

- 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

- 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)

- 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 550 g, 1.2 m wingspan fixed-wing unmanned aircraft that can be assembled in less than 90 s and carry 1,500 g 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