KATANA RAIN FINLASON

Project Portfolio: https://katanarain.github.io/portfolio/portfolio.html
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Skills

- CAD & CAM Software (SolidWorks & Fusion 360)
- Product Design & Design for Manufacturing
- Rapid Prototyping (FDM/SLA 3D Printing)
- MATLAB & C++
- Mechanical Analysis & Testing
- CNC & Manual Machining
- Plastic Injection Molding & Thermoforming
- Microsoft Office & Adobe Suite
- Technical Documentation
- Presenting & Public Speaking

Education

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (M.I.T.)
M.S. & B.S. in Mechanical Engineering. GPA: 4.9

- ➔ Concentration in Product Development and Machine Design with a minor in Environmental/Energy Studies.
- ➔ Relevant Coursework: Mechanics and Materials, Numerical Computation, Dynamics and Control, Design and Manufacturing I & II, Thermal-Fluids Engineering, Product Engineering, Applications of Energy in Global Development, Advanced Measurement and Instrumentation, Elements of Mechanical Design, Structural Materials, Compliant Mechanisms.

Job Experience

CADLAB
Graduate Researcher in MIT Mechanical Engineering Department
[Sep. 2023 - June 2025]

- ➔ Master's Thesis involved the designing, testing and implementing of incubators for species which exhibit temperature-dependent sex determination (application to Hawksbill Sea Turtles in rising ambient temperatures). Worked as an engineering consultant with conservationist community partners in Jamaica.

MIT Toy Lab / Product Design Laboratory
Instructor for 2.009 'Product Engineering Process', 2.00B 'Toy Product Design', and 2.00 'Introduction to Design'
[Jan. 2023 - June 2024]

- ➔ Instructor for three of the most well-known core mechanical engineering classes at MIT including the senior capstone class. Mentored teams, prepared lecture material, designed graphics, and actively worked to better engineering education. Coordinated large scale events that cater to thousands of viewers.

MIT Pappalardo Lab
Apprentice & TA for 2.007 'Design and Manufacturing I'
[Feb. 2022 - June 2023] & [Feb. 2025 - June 2025]

- ➔ Worked in the Mechanical Engineering Lab 'Pappalardo'. Assisted students with their robot construction and gave them advice on the best fabrication techniques. Held weekly office hours to cover technical engineering content. Machined my own fully-functioning Stirling engine and camelback straightedge.

MIT Laboratory for Manufacturing and Productivity (LMP)
Lab Assistant & TA for 2.008 'Design and Manufacturing II'
[Sep. 2022 - June 2023] & [Sep. 2024 - Dec. 2024]

- ➔ Instructed students while working closely with other course staff to improve the structure of the class. Taught students the art and science of large scale manufacturing operations in lecture and lab. Created documentation to help students gain a fundamental understanding of machine tools.

MIT UROP
Undergraduate Researcher in MIT Mechanical Engineering Department
[June 2022 - Sep. 2022]

- ➔ Designed and built the housing and optical fluidics system for a digital holographic microscope that was deployed in the field. Worked on a similar technology for an underwater ocean lander that was built and deployed during the 2024 MIT Marine Robotics Program on Faial Island in the Azores.

[June 2021 - Sep. 2021]

- ➔ Studied the effects of rising CO_2 levels on ocean acidification and the ultimate impact it would have on calcifying organisms, such as mollusks, in the New England area. Conducted a meta-analysis for the MIT Sea Grant by collecting data, creating a database, and performing an analysis to be used in future studies.