Nisal Ovitigala

Hardware Test Engineer

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EDUCATION

B.Sc. in Mechanical Engineering, Massachusetts Institute of Technology, 2021

Relevant Coursework - Robotic Systems, Bio-Inspired Robotics, Design and Manufacturing, Electro-Mechanical Systems, Numerical Computation, Dynamics and Controls, Programming and Data Science, Mechanics and Materials, Thermal-Fluids Engineering, Product Design, Precision Machine Design

TECHNICAL SKILLS

- **Hardware:** CNC Machining, 3D printing, Vacuum forming, Injection molding, Rapid prototyping
- **Software:** Python, C++, MATLAB, SQL, SolidWorks, Onshape, Fusion 360 (CAD and CAM), Autodesk CFD
- **Embedded:** Linux, Raspberry Pi, Sensor integration, Multithreaded data acquisition, PCB design, Circuit Debugging

PROFESSIONAL EXPERIENCE

Formlabs | Low cost industrial grade 3D printers

Test Engineer, *July 2021 – Present*

- Successfully eliminated the second-largest hardware failure on the Fuse 1 by implementing and validating thermal system modifications for improved functionality and lifetime, and established quantitative methods to monitor degradation
- Optimized SLS machine performance by reducing total print time by 20% through firmware changes while improving lifetime of relevant wear components
- Investigated and root caused the largest sensor failure in the SLS lineup, collaborating with manufacturing, sourcing, and sustaining teams to implement both short-term and long-term mitigation strategies
- Conducted compliance risk assessment for the Fuse 1+ for worldwide functionality in diverse environmental and electrical conditions
- Created automated fiber laser characterization tool, resulting in efficient data collection of LIV curves, thermal response, and high-frequency switching response.
- Developed and integrated various test setups with data logging for internal use, including environmental chambers, pneumatic impact testers, and thermal lifetime testers

MIT Micro/Nano Engineering Laboratory | Nanotechnology research laboratory

Automated Systems Developer, *June 2020 - June 2021*

- Developed and implemented software and hardware components for remote control and viewing of laboratory microscopes, resulting in improved remote learning experience for undergraduate and graduate students during the pandemic
- Designed and created a haptic-feedback controller for an Atomic Force Microscope (AFM), providing undergraduate students with hands-on experience of AFM operating principles, resulting in the publication and presentation of research at the ASEE annual conference (Link to Paper)

Keolis Commuter Services | Massachusetts commuter rail operations

Innovation and Performance Intern, *June 2019 – September 2019*

- Investigated and eliminated oil pump malfunction in locomotive fleet, reducing unscheduled maintenance occurrences by over 15%
- Designed and integrated filter cleaning procedures in locomotive maintenance, saving $30,000 per locomotive in annual upkeep cost
- Designed locomotive 3D models and analyzed fluid simulations of exhaust gasses, enabling rapid iteration of body panel designs to eliminate carbon buildup on headlight surfaces