

# Nisal Ovitigala

Innovation Engineer

Somerville, MA

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nisal0.github.io



## EDUCATION

**M.Sc in Data Science, New England College, March 2026**

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

## PROFESSIONAL EXPERIENCE

### New Balance | Athletic Footwear and Apparel

**Innovation Engineer**, March 2023 - March 2026

- Integrated Allen-Bradley PLCs, Universal Robots, Ignition SCADA, and custom hardware to engineer a ground-up automated textile assembly cell scaling to 1,200 units/day
- Utilized SolidWorks to rapidly prototype and consolidate a 6-component hardware assembly into a single custom sheet metal bracket, eliminating critical alignment errors and reducing BOM complexity. Managed design changes through PDM
- Developed Allen-Bradley ladder logic and converted DC to stepper control for precision positioning with stall-detection and custom calibration routines. Fused multi-node sensor arrays data for presence detection and engineered architecture to SIL 2 safety standards
- Served as primary technical POC for a ~\$100K project with contract manufacturers. Mitigated 3-month lead-time delays by identifying and validating alternative hardware components to maintain deployment schedules
- Built inspection cells via Matrox Imaging Library and custom ML models to automate IQC, achieving 0.5mm feature detection and eliminating operator subjectivity
- Conducted climate-controlled testing to disqualify electrostatic grippers due to environmental sensitivity. Validated multiple gripper technologies for production and initiated custom vendor development for next-gen hardware
- Established testing standards such as accelerated lifetime testing to identify and remediate critical failure modes before production, ensuring system stability over high-cycle operation and minimizing system downtime

### Formlabs | Low cost industrial grade 3D printers

**Test Engineer**, July 2021 - March 2023

- 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
- Conducted compliance risk assessment for the Fuse 1+ for worldwide functionality in diverse environmental and electrical conditions
- Created automated fiber laser characterization tool using python, resulting in efficient data collection of LIV curves, thermal response, and high-frequency switching response. Tool used to validate supplier quality and laser lifetime
- Developed and integrated various test setups with data logging for internal use, including environmental chambers, pneumatic impact testers, and thermal lifetime testers. Conducted data analysis and generated report for improvements

## TECHNICAL SKILLS

- **Hardware:** CNC Machining, 3D Printing, Injection Molding, Sheet Metal Design, DFMA, Vacuum Forming, Rapid Prototyping, PCB Design, Circuit Debugging, DOE
- **Software:** SolidWorks & PDM, Onshape, Fusion 360, Matrox Imaging, Python, C++, MATLAB, SQL, Linux, Allen-Bradley PLC (Ladder Logic), Universal Robots, Ignition SCADA
- **Embedded:** EtherNet/IP, Modbus TCP/IP, Computer Vision, Machine Learning, Sensor Integration, Data Acquisition & Analysis, Accelerated Lifetime Testing