Cambridge, MA 02139 | (347) 579-5318 | nisal@mit.edu | nisal98.github.io

Education

Bachelor of Science: Mechanical Engineering

Massachusetts Institute of Technology - Cambridge, MA

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

Work History

Automation System Developer

MIT Micro/Nano Engineering Laboratory - Cambridge, MA

- Enhanced remote learning during pandemic for over 50 students by developing a remote-controlled microscope
- Increased motion precision by three orders of magnitude to achieve micrometer-level precision which allows users to conduct Z-height scans without additional hardware
- Improved user experience by implementing photo/video recording features, live coordinate readout and automated motion features

Co-founder of Assistive Tech. Product

TILT – Cambridge, MA

- Designed a modular attachment to allow wheelchair users to traverse staircases
- Analyzed data from alpha prototype tests conducted with over 20 wheelchair users in India
- Iterated design to reduce manufacturing time from two hours to twenty minutes

Robotic Systems Researcher

MIT d'Arbeloff Laboratory - Cambridge, MA

- Developed small, 3D printed robotic legs to test novel control algorithms for viability before scaling it up to fullsized robotic legs
- Reduced prototyping time by 30% by providing software that visualizes workspace and torque requirements
- Developed a hybrid force/position control walking algorithm by interfacing C++ and MATLAB code

Innovation and Performance Intern

Keolis Commuter Services - Boston, MA

- Coordinated and led an interdisciplinary team to conduct locomotive engine testing
- Reduced maintenance time by 15% by resolving pump malfunction through root cause failure analysis
- Saved \$30,000 annually by integrating an oil filter cleaning system into maintenance schedule
- Reduced headlight redesign project timeline by 6 months by conducting Computational Fluid Dynamics simulations
- Designed 3D models of locomotives from engineering drawings for future modifications and simulations

Skills

- Engineering: DFM, DFA, Sensor Integration, 3D Printing, CNC Machining, Injection Molding, Thermoforming, Embedded Systems
- **Software:** Fusion 360 (CAD, CAM, FEA), SolidWorks, Autodesk CFD, Moldflow, Siemens PLM Tecnomatix
- Programming: Python, MATLAB, C++

June 2020 – September 2020

Expected in June 2021

January 2020 – Present

June 2019 – September 2019

January 2020 - March 2020