NITHESH KUMAR

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Summary

Doctoral candidate in Electrical and Electronics Engineering at Clemson University with a focus on hardware prototyping, electromechanical design, and production workflows. Experienced in robotics, adaptive environments, and PCB design, with a track record of innovation in both academic and industry settings. Certified Six Sigma Green Belt, dedicated to advancing robotics and adaptive technologies .

Skills

- PCB Design: OrCAD, Allegro PCB, SMT Soldering
- 3D Modeling: SolidWorks, 3D Printing
- Programming: MATLAB, Microcontroller C, Linux
- Project Management: Arena PLM, Agile, Jira
- Six Sigma Green Belt Certified
- Experienced in handling power tools

Education

Clemson University, Clemson, SC — *2020 – Present*
PhD in Electrical and Electronics Engineering (Expected: 2025)

University of New Haven, West Haven, CT — *2017*
Bachelor of Science in Electrical and Electronics Engineering

Experience

Graduate Research Assistant — Clemson University, SC
Sep 2020 - Present

- Led the design and prototyping of adaptive "Robot Rooms", reconfigurable robotic living spaces addressing space constraints through advanced CAD modeling and 3D prototyping.
- Developed electromechanical systems with servo motors, actuators, and sensors, ensuring precision and reliability for robotic applications
- Designed a bio-inspired robotic gripper and a self-deploying "space bridge" prototype using rapid prototyping.
- Managed a multidisciplinary team of undergraduate researchers, overseeing project deliverables and mentoring students in hardware design and robotics principles.
- Took projects from concept to final prototype, managing budgets, timelines, and procurement to ensure successful implementation.
- Published and presented findings at robotics conferences and journals, showcasing innovations in adaptive and robotic systems.

Robotics Lab Manager — Clemson University, SC
Aug 2022 – Present

- Managed and maintained lab equipment, ensuring readiness for complex robotics projects and facilitating interdisciplinary collaborations.
- Developed and enforced safety protocols for the robotics lab, conducting regular compliance audits.
- Trained students and lab members in the use of robotics platforms, advanced prototyping tools, and industry-standard safety practices.
- Coordinated with faculty to support project needs.

Electrical Engineer — Fiber Mountain, CT
Jul 2017 – Mar 2020

- Designed and tested custom PCB test fixtures, improving testing precision by nearly 15% and reducing testing time, which streamlined manufacturing and improved production efficiency by approximately 33% overall.
- Led production workflows and managed the bill of materials (BOM) for new designs, ensuring streamlined production and component availability.
- Implemented agile workflows for the hardware engineering team, enhancing project coordination and iteration speed.
- Sourced and integrated shielded HDMI cables for ETL-certified designs, elevating product reliability and meeting industry standards.

Electrical Engineering Intern — Timex Group, CT
Jul 2016 – Sep 2016

- Developed and programmed wearable test modules for watches, contributing to Timex's wearable technology innovations.
- Designed and prototyped PCB circuits for test modules, optimizing production workflows and improving testing efficiency.

Publications

- **N. Kumar**, et al., *Design of Morphing Robot Surfaces*, IEEE Robotics and Automation, 2024.
- **N. Kumar**, et al., *Quantitative Dynamic Structural Color*, Advanced Optical Materials, 2024. **Issue Cover**
- **P. Malhotra, N. Kumar**, et al., *Soft Robotics for Fall Mitigation*, ReMAR Conference, 2024.