

PROFESSIONAL EXPERIENCE

Research Assistant | New Jersey Institute of Technology | Newark, NJ, US

Jan 2023 – May 2023

- Designed a probe system to mark the position of cancerous growth on human skin so a surgeon can easily cut it out.
- Developed a computer vision application to track the probe so the surgeon knows which part of the skin is under observation.
- Optimized an automatic algorithm to visually detect tumors growing under the skin surface, saving the time needed to triangulate where to cut.

Intern | Supertech Instrumentation Services Pvt. Ltd. | Thane, MH, India

Jan 2022 – March 2022

- Developed a monitoring system for remotely observing status of motors in the field, from anywhere in a factory.
- Trained 3 technicians to utilize this system to save the time of having to go to the control room.
- Created an Augmented Reality interface between generic tablets and the monitoring algorithm to make this system easy to use and more accessible.

SKILLS

Technical

Discrete Event Systems, Artificial Intelligence, Embedded Systems

Programming

Python, MATLAB, C, C++, JavaScript, Lisp, Rust

Software

IntelliJ (IDEA, PyCharm, CLion), STM32CubeIDE, Emacs, Vim, NI LabView, Node-RED

KEY PROJECTS

Embedded Physics Engine for Second Order Systems of Motion: A physics engine implemented on an ARM M4 microcontroller. Has highly optimized differential equation solvers and is designed to simulate a rigid body's response to a step change in its position.

Skills: Control Systems, Embedded C

EOG – EOG Observed Gaze: A lightweight and economic wearable device, housing a complete drowsiness detection system, that can be worn by drivers and heavy machinery operators to notify them and trigger safety alarms when they are on the verge of falling asleep.

Skills: Finite State Machines, Artificial Intelligence, Object Oriented Programming, Digital Signal Processing, Python, C, Embedded C++

PID Waveform Simulator: A novel system that recreates a given input waveform using a Proportional, Integral, and Derivative control based algorithm. It has applications in simulations on resource-constrained devices, and digital compression technology.

Skills: Control Systems, Digital Signal Processing, Object Oriented Programming, Python, Rust

IoT Based Motor Monitoring System: An industrial IoT solution for remotely monitoring electrical variables associated with motors, using touch screen devices.

Skills: Object Oriented Programming, Modbus TCP/IP, JavaScript, Node-RED

PUBLICATIONS

Raj Anchan et al. "Optimal Bipolar Lead Placement in Electrooculography (EOG): A Comparative Study with an Emphasis on Prolonged Blinks". In: *2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT)*. July 2020, pp. 1–7. DOI: [10.1109/ICCCNT49239.2020.9225609](https://doi.org/10.1109/ICCCNT49239.2020.9225609)

Ashwin Pillay et al. *Real-Time Detection of Drowsiness Among Vehicle Drivers: A Machine Learning Algorithm for Embedded Systems*. 2021. arXiv: [2111.03177](https://arxiv.org/abs/2111.03177) [eess.SP]

Indian Government Patent #202121008470, "A Novel Wearable for Detecting Drowsiness Among Operator of Heavy Machinery/Vehicles"

EDUCATION AND CERTIFICATION

Master's in Electrical Engineering | New Jersey Institute of Technology | Newark, NJ, US

GPA – 3.83

2022 - 2024

Bachelor's in Instrumentation Engineering | Vivekanand Education Society's Institute of Technology | Mumbai, MH, India

Indian CGPI – 6.88

2016 – 2020

LabVIEW Core 1 and Core 2 | National Instruments

2018

OTHER ACHIEVEMENTS

Winner in DST & Texas Instruments IICDC 2019 Conclave

2019

Part of the top 60 winners among over 10K+ participants.