TRISHA CHATTERJEE

ELECTRONICS AND INSTRUMENTATION ENGINEER

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Education

B.Tech in Electronics and Instrumentation Engineering   Nov 2020 - Dec 2024
National Institute of Technology Rourkela, Odisha   *CGPA: 7.49/10*

Professional Experience

Graduate Apprentice at DRDO (Integrated Test Range, ITR)   January 2025 - July 2025
Radar System Group

Assisting in the development and testing of radar systems for defense applications. Conducting data analysis and simulations to enhance radar performance.

Collaborating with scientists and engineers on research and development projects.

Gaining hands-on experience in radar signal processing and system integration.

Skils : Python, C++, C , Matlab, Data Collection .

Internship

Internship in May-Jun 2023 Embedded Team, Verzeo, Bangalore

Developed a strong understanding of the 8051 microcontroller, programming it in both C and Assembly.   ***May - Jun 2023***

Minor Project: Stepper Motor Control Project Objective: Built a stepper motor control system to demonstrate precise positioning and speed control. .

Major Project: Robotics Control System Project Objective: Designed and implemented a robotics control system using the 8051 microcontroller.

Academic Projects

Filter-Based Respiratory Rate Estimation from PPG Signal   Jun 2023
Analyzed signals in MATLAB and Python to preprocess data and calculate respiratory patterns.

UAV Image Detection Using YOLO v8   Jan 2024
Developed an image detection system for UAV-captured images using the YOLO v8 model.

GUI-Based Attendance Management System   Jun 2022
Developed a GUI for an Attendance Management System using Python, machine learning, HTML, and SQL.

Bachelors Thesis / Project

BER of BFSK in NOMA   Jun 2023 - Jun 2024

Conducted detailed analysis of Bit Error Rate (BER) for Binary Frequency Shift Keying (BFSK) in Non-Orthogonal Multiple Access (NOMA) systems.

Derived mathematical models to evaluate BER under varying Signal-to-Noise Ratio (SNR) in AWGN channels.

Investigated the effects of power allocation and user prioritization on BER performance in multi-user environments.

Utilized simulation tools to validate theoretical findings and compare BER performance for near and far users.

Enhanced knowledge of digital communication systems, focusing on modulation techniques and error analysis.

Technical Skills

Programming: Python, C++, Java.

Machine Learning Frameworks: Scikit Learn, Matplotlib & Numpy.

Technical Development Tools:Visual Studio, CMake, GCC, GDB. **Libraries Frameworks**: STL, Boost, OpenCV, Qt. **Databases**: MySQL, PostgreSQL, SQLite. **Version Control**: Git, GitHub, GitLab. **Operating Systems**: Windows, Linux (Ubuntu), MacOS. **Concepts**: Data Structures Algorithms, OOP, Multithreading, Memory Management, Design Patterns.

Academics Accomplishments & Extracurricular

Interned at one of the **top prestigious students Internship 2022** for Nanoscience and Nanoelectronics at IISER Bhopal under Prof Kuntal Roy

97.56^{th} Percentile in **JEE Main 2020 — Computer Science 100/100 in 10th ICSE Board, Solved leetcode and codechef problems**.

8K+ followers on LinkedIn.Participated in GK, Parad in School