SUBHRAJIT MUKHERJEE

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Research Interests

Embedded Systems, Embedded Linux, Hardware–Software Co-Design, Real-Time Systems, FPGA/HDL Design, Power Electronics for Embedded Applications

Education

B.E. in Electrical Engineering
Jadavpur University, Kolkata — Nov 2024 – Present
CGPA: 8.80 / 10.00

Foundation in Data Science
IIT Madras (Online) — Jan 2025 – Present
CGPA: 8.50 / 10.00

Senior Secondary (Class XII), CBSE
Haryana Vidya Mandir, Kolkata — 2024
Percentage: 88.2%

Secondary (Class X), CBSE
Asian International School, Kolkata — 2022
Percentage: 94.2%

Work Experience

- Def Space Intern, Bharat Space Education Research Center (BSERC) — Dec 2025 – Jan 2026

Technical Skills

- **Programming Languages:** Python, MATLAB, JavaScript, C/C++, Bash
- **Machine Learning:** Image classification models, dataset handling (87k+ samples)
- **Data Structures and Algorithms:** Standard data structures and algorithmic problem solving
- **Embedded Systems:** Embedded Linux (Raspberry Pi), GPIO, device interfacing, SBC-based system design
- **Networking & Communication:** Telemetry Systems, Inter-Device Communication
- **UAV & Robotics:** UAV Systems Engineering, Autonomous Systems, Ground Control Systems
- **Simulation & Tools:** SITL, Gazebo, ROS, MATLAB, Simulink, Linux, Git
- **Electronics:** Power Electronics, Analog Circuit Design, Prototyping

Projects

Autonomous Multi-UAV System with Ground Control Station
- Designed and implemented software for autonomous operation of a two-drone system.
- Developed ground control functionality for telemetry monitoring and mission execution.
- Implemented communication between UAVs and control systems.
- Tested and debugged system behavior using Software-in-the-Loop (SITL) simulation.
- Implemented the software using Raspberry Pi and Pixhawk Cube Orange+ on both drones.

Machine Learning Algorithm for Identifying Plant Diseases
- Trained a model to identify common diseases in crops on 87k+ datasets.
- Achieved more than 95% accuracy on disease detection.

Chronos OS
- Currently developing a time-aware operating system using Rust.
- Implemented kernel and memory read/write functionality.
- Developed RTL8139 network driver and mouse driver enabling drag-and-drop window interaction.
- Built a basic window manager.
- Focused on low-level systems programming and OS design for embedded platforms.

Theoretical Analysis Of Supercapacitors as a Power Source for Drones Instead of Conventional Lithium Ion Batteries
- Designed and prototyped a capacitor bank for embedded power applications.
- Designed and simulated a DC–DC boost converter.
- Performed component selection, circuit assembly, and output testing.

Achievements

- Received certificate of participation from DFI and NIDAR for participating in NIDAR 2025/26.
- Top 6 Position Holder in Drone Innovations and Top 10 overall in NIDAR 2025/26.
- Received certificate of participation from IICPC Competitive Programming Summer Camp 2024.
- Received certificate for completion of Foundation Level in Programming and Data Science by IIT Madras.
- Completed internship at Bharat Space Education Research Center (BSERC), affiliated with ISRO under Viksit Bharat 2047.

Extra-Curricular Activities

- Selected as Hackathon Ambassador for HackHazards' 2025 organised by Namespace community.