

SANJAY THAKUR

Space Systems Engineer

+91-9831095919 | sanjaythakur219@gmail.com | Gurugram, Haryana, India

<https://www.linkedin.com/in/sanjay219/> | <https://github.com/sanjay219> | <https://sanjaythakur.in/>

PROFESSIONAL SUMMARY

Space Systems and Robotics Engineer with 5+ years of experience in flight-grade hardware integration, HIL testing, UAV autonomy, and advanced control system design. Currently building spacecraft OBCs and test infrastructure at SpaceTS. Ph.D. in Electrical Engineering (Jadavpur University); AICTE National Doctoral Fellow; 5+ IEEE publications; GATE 2017 qualified.

TECHNICAL SKILLS

Space Systems: HIL Testing (OpenC3 Cosmos, Matlab), SpaceWire, MIL-STD-1553, Space Fibre, PC104, Flight OBC Development, Thruster Systems, ICD Documentation, Wire Harnessing, CAN communication, Hardware procurement, Space Lab Development including clean room

UAV and Robotics: ROS2, Gazebo, ArduPilot, Pixhawk, MAVLink, QGroundControl, Mission Planner, MIL/SIL/HIL, Precision Landing

Modelling and Control: MATLAB, Simulink, Simscape, Lyapunov Control, PID, Sliding Mode Control, Optimal Robust Control, Model-Based Design

Embedded and Programming: C, C++, Python, Arduino, Raspberry Pi, Jetson Nano/Orin, Quectel RG500Q-EA 5G Module, PPP/UART

Tools and Platforms: AWS, SolidWorks, Git, OpenC3 Cosmos, Scilab

WORK EXPERIENCE

Space Systems Engineer

SpaceTS | Gurugram, Haryana, India

January 2026 – Present

- Led space hardware integration including procurement, lab setup, and complete wire harnessing for flight systems.
- Deployed and operated HIL testing infrastructure using OpenC3 Cosmos for end-to-end spacecraft system validation.
- Configured thruster systems, compiled the Quantum Guard package, and established PPP-based UART communication on Raspberry Pi Zero 2W within a 2W power budget.
- Evaluated avionics interface options (SpaceWire, Ethernet, MIL-STD-1553) for Jetson Orin Nano integration and developed MATLAB simulations for Spacecraft Rendezvous and R-Bar Docking.
- Developing flight-grade OBCs with MIL-STD-1553, SpaceWire, Space Fibre, and DC-DC power converters; refined ICD documentation with vendors including L&T.
- Developing CAN based communication among the components of the panels.

Robotics Engineer Intern

TechEagle Innovations Pvt. Ltd. | Gurugram, Haryana, India

March 2025 – December 2025

- Developed UAV autonomy model and precision landing control system; built embedded applications on Quectel RG500Q-EA 5G module for remote drone access.
- Executed MIL/SIL/HIL testing of Quadcopter in Simulink; performed drone integration and flight log analysis using Mission Planner, QGroundControl, ROS2, Pixhawk, and ArduPilot.

Visiting Faculty – Electrical Engineering

Jadavpur University | Kolkata, West Bengal, India

January 2020 – June 2022

- Delivered undergraduate lectures and laboratory sessions in Electrical Engineering while concurrently conducting Ph.D. research in control systems.

Senior Research Fellow (Ph.D.)

Control Systems Laboratory, Jadavpur University | Kolkata, West Bengal, India

February 2020 – February 2025

- Modelled single- and two-link flexible manipulators; designed and validated Lyapunov-based, Sliding Mode, and Optimal Robust controllers for trajectory tracking and vibration reduction.
- Developed optimization algorithms for automated gain tuning and built a fully interfaced low-cost hardware prototype with Arduino, MATLAB, encoders, and accelerometers.

Research Engineer (M.Tech.)

NIT Sikkim | Ravangla, Sikkim, India

July 2018 – June 2019

- Designed Lyapunov-based UAV trajectory controller in Scilab and built a Raspberry Pi-powered obstacle-avoidance robot with wireless control via Wi-Fi and VNC Viewer.

Bachelor Thesis Project (B.Tech.)

Adamas Institute of Technology | Barasat, Kolkata, India

January 2015 – January 2016

- Designed and implemented an infrared-sensor-based obstacle-avoiding robot using NOT gate logic, motor driver IC, DC motors, and voltage regulator for reliable autonomous navigation.

EDUCATION

Doctor of Philosophy (Ph.D.) – Electrical Engineering | 84.5% | 2020 – 2025 (Thesis Submitted)

Jadavpur University, Kolkata, West Bengal, India

Master of Technology (M.Tech.) – Electrical Engineering | 86.9% | 2017 – 2019

National Institute of Technology Sikkim, Ravangla, Sikkim, India

Bachelor of Technology (B.Tech.) – Electrical Engineering | 77.8% | 2012 – 2016

Adamas Institute of Technology, Kolkata, West Bengal, India

PUBLICATIONS AND HONORS

- 5+ peer-reviewed publications in IEEE and international journals on robotics and control systems. Full list: <https://scholar.google.com/citations?user=pS8VCuMAAAAJ&hl=en&authuser=2>
- AICTE National Doctoral Fellow (2019): Selected among 223 fellows nationwide for outstanding research potential.
- GATE 2017 Qualified – Electrical Engineering.

LANGUAGES

English (Professional Working Proficiency) | Hindi (Native) | Bengali (Native)