SOURAV GHOSH

Aerospace Engineer
Graduate Student at the Intelligent Space Systems Laboratory
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EDUCATION

2020 - 2024 | Jain (Deemed to be University), Bengaluru, India

Bachelor of Technology - **Aerospace Engineering** | CGPA - 8.66

2024 - 2026 | The University of Tokyo, Tokyo, Japan

Master of Engineering - **Aeronautics and Astronautics** | GPA - 3.75
MEXT Scholar (awarded by the **Japanese Ministry of Education, Culture, Sports, Science and Technology**)
Under the guidance of **Dr. Ryu Funase** and **Dr. Yosuke Kawabata**

EXPERIENCES

Team Avadhi - Jain (Deemed to be University)
Co-founder | May 2022 - January 2024
- Collegiate High Powered Rocketry Club
- Team lead of Avionics and Guidance, Navigation, and Control for Sounding Rockets.
- Also contributing towards Propulsion and Mission Design.
- Designed the Flight Computer and Control system for recovery systems.

Team Ardra - Jain (Deemed to be University)
Team Leader | August 2022 - April 2024
- Collegiate CANSAT Team participating in the IN-SPACE CANSAT Competition 2022-24
- Wrote the Flight Software
- Designed a PID Controller for the Reaction wheel control
- Systems Integration of the CANSAT

Human Space Flight Centre - Indian Space Research Organization
Project Intern | January 2024 - April 2024
- Completion of Bachelor's thesis under the guidance of Dr. C Geethaikrishnan, Deputy Director of HSFC, ISRO, and Mr. Gnani Ankathi, Scientist 'C', HSFC, ISRO.
- Work titled "A Comparative Study of Performance of Modern Lambert's Problem Solvers"

Graduate Researcher - Intelligent Space Systems Laboratory, The University of Tokyo
Researcher | April 2025 - Present
- Research on Space Debris Tracking, Cislunar and Interplanetary Mission Design, Astrodynamics, and Trajectory Optimisation.

PROJECTS

SAEIndia Aerothon 2023 - Control of a Vision Based Autonomous Quadcopter

Completed | 2023

- Implemented Autonomous Operational modes using PyMAVLink
- Implemented Computer Vision using YOLO-V8 for Object Recognition
- Flight Control Design using Pixhawk 2.4.8

Airborne and Space-borne Synthetic Aperture Radar Calibration using Corner Reflectors

Completed | 2023

- Calibration of SAR mounted on an aircraft flying at 10,000 ft.
- Calibration of SAR mounted on RISAT-1A

Agnibaan-1 High Powered Rocket by Team Avadhi

Completed | 2023

- Achieved Apogee of 2007 ft.

IN-SPACe CANSAT Student India Competition 2022-24

Completed | 2024

PUBLICATIONS

Chandar, A.E., Phalphale, A., **Ghosh, S.**, Desai, S. (2021) '**Structural Investigation of Agricultural UAV**', International Journal of Scientific Research & Engineering Trends, 7(2).

Ghosh, S., Badgujar, S., Gyeltshen, T., Allamaprabhu, C. Y., (2024) '**Lunar Mission Design using the Three-Body Problem**', International Conference on Advances in Aerospace and Energy Systems 2024.

Ghosh, S., Sharma, P. S., Badgujar, S., Pundit, S., Nagesh, A., (2024) '**Characterization of Orbits in Cislunar Space for Space Traffic Management**', International Astronautical Congress 2024, Milan.

Varma, K., **Ghosh, S.**, Badgujar, S., Furtado, G., Puthiyadath, V., (2024) '**Constraints and Challenges in Guidance, Navigation and Control Architectures for Beyond Earth Orbit CubeSat Missions**', International Astronautical Congress 2024, Milan.

Maurya, R., Wischert, D., **Ghosh, S.**, et. al. (2024) **'Sailing Through Space: Advancing Space Exploration with Maneuverable Solar-Sailed Small Satellites',** International Astronautical Congress 2024, Milan.

Maurya, R., Wischert, D., **Ghosh, S.**, et. al. (2024) **'Conceptual Design and Feasibility Analysis of Maneuverable Solar-Sailed Small Satellites for Deep-Space Exploration and Communication',** International Astronautical Congress 2024, Milan.

Ghosh, S., Sharma, P. S., Badgujar, S., Pundit, S., (2025) '**Cislunar Space Traffic Management based on Operational Zones**' , 35th International Symposium on Space Technology and Science 2025, Tokushima, Japan.

Ghosh, S., Kawabata, Y., Funase, R., (2025) **'Space Debris Propagation and Collision Risk Assessment in the Cislunar Region',** International Conference on Space Robotics 2025, Sendai, Japan. - **Under Review**

CERTIFICATIONS

- **Rocket Propulsion** - NPTEL
- **Introduction to Launch Vehicle Analysis and Design** - NPTEL
- **Space Flight Mechanics** - NPTEL
- **Computational Science in Engineering** - NPTEL
- **Automatic Control** - NPTEL
- **Mechanics and Control of Robotic Manipulators** - NPTEL
- **Aerospace Materials** - Coursera
- **Kinematics: Describing Motion of Spacecraft** - Coursera
- **Kinetics: Studying Spacecraft Motion** - Coursera
- **Arm Cortex-M Processors Overview** - Coursera
- **AstroTech: The Science and Technology behind Astronomical Discovery** - Coursera
- **Introduction to Programming with MATLAB** - Coursera
- **Systems Engineering** - Coursera
- **Introduction to Experiments in Flight - IIT Kanpur Flight Laboratory, Feb 2023**
- **Rocket Systems Technologies - Indian Institute of Science, June 2024**

COURSES TAKEN

- **Vibration of Elastic Systems** - Jain (Deemed to be University)
- **Control Systems Engineering** - Jain (Deemed to be University)
- **Flight Mechanics I and II** - Jain (Deemed to be University)
- **Introduction to Radar Systems** - Jain (Deemed to be University)
- **Operations Research** - Jain (Deemed to be University)
- **Aerodynamics** - Jain (Deemed to be University)
- **Aerospace Propulsion** - Jain (Deemed to be University)
- **Space Dynamics** - Jain (Deemed to be University)
- **Micromechatronics** - The University of Tokyo
- **Observation and Exploration of Planets and Earth** - The University of Tokyo
- **Remote Sensing Image Analysis** - The University of Tokyo
- **Advanced Energy Conversion** - The University of Tokyo
- **International Systems Design Workshop** - The University of Tokyo
- **Water Surface Waves** - The University of Tokyo and Seoul National University
- **Systems and Control** - The University of Tokyo
- **Information and Measurement** - The University of Tokyo
- **Analytical Methods in Mathematical Informatics** - The University of Tokyo