Arya Das

PhD | Flight Mechanics and Control
Department of Aerospace Engineering
Indian Institute of Technology, Kanpur

✉ aryad22@iitk.ac.in / ☎ +91-8420233990
 aryadas98 / aryadas98

EDUCATION

Year	Degree/Certificate	Institute	CPI/%
2022-Present	PhD/Aerospace Engg.	Indian Institute of Technology, Kanpur	9.71/10
2017-2021	B.Tech/Computer Science & Engg.	Indian Institute of Technology, Patna	8.69/10
2015-2017	Indian School Certificate Examination	Don Bosco School, Park Circus, Kolkata	95.5%
2003-2015	Indian Certificate of Secondary Education	Don Bosco School, Park Circus, Kolkata	89.8%

- **Key courses in PhD:** Flight Stability & Control, Non-linear & Adaptive Control, Space Dynamics-I, Embedded & Cyber Physical Systems, Introduction to Machine Learning, Introduction to Robotics.
- **Key courses in B.Tech:** Deep Learning, Bio-Inspired Robotics, Algorithms, Data Structures, Databases, Operating Systems, Computer Networks, Computer Architecture, Computer Security

RESEARCH EXPERIENCE

- **PhD Scholar**, Indian Institute of Technology Kanpur   *Aug'22 - Present*
  Guide: Dr. Dipak Kumar Giri, Department of Aerospace Engineering.
  - Attempting to utilize the complex n-body dynamics of the cis-lunar region to create efficient trajectories.
  - Incorporating machine learning techniques to find good initial guesses for the above trajectory optimization problem.
  - Special focus is on Near Rectillinear Halo Orbits (NRHOs) because of their use in upcoming space missions.
- **BTech Project**, Indian Institute of Technology Patna   *Jul'20 - May'21*
  Guide: Dr. Raju Halder, Department of Computer Science & Engineering
  Co-guide: Dr. Atul Thakur, Department of Mechanical Engineering
  - We applied deep reinforcement learning to perform efficient exploration of 3D space using a wall climbing robot.
  - A paper regarding this work was accepted at the IEEE TENCON 2021 conference.

PUBLICATIONS

- P. Dubey, **A. Das**, D.K. Giri *"Bald Eagle Search Optimization based Bioinspired Spacecraft Rendezvous- Docking and Space Debris Mitigation"* International Astronautical Congress 2022, Paris, France
- V. Saini, **A. Das**, C. Sikarwar, P. Dubey, D. K. Giri *"Design and Development of Spacecraft Simulator Testbed: Platform for Validating Maneuvering Control Strategies in Frictionless Environment"* International Astronautical Congress 2022, Paris, France
- **A. Das**, R. Halder, A. Thakur *"Deep Reinforcement Learning-Based 3D Exploration with a Wall Climbing Robot"* IEEE TENCON 2021, Auckland, New Zealand

TEACHING

Time Period	Organization	Duration	Details
Jan '23 - Apr '23	NPTEL	24 hrs	Conducted interactive Q&A sessions for the course "Programming in Modern C++"
Mar '23 - Apr '23	CSJM University	30 hrs	Conducted a workshop on LaTeX
Jul '23 - Oct '23	NPTEL	24 hrs	Conducted interactive Q&A sessions for the course "Programming in Modern C++"

WORK EXPERIENCE

- **Project Associate**, Indian Institute of Technology Kanpur   *Aug'21 - Jul'22*
  Guide: Dr. Dipak Kumar Giri, Department of Aerospace Engineering.
  - Worked at the Space Dynamics and Flight Control Laboratory under Dr. Dipak Kumar Giri.
  - Worked on developing a 5-dof frictionless satellite simulator.
  - Primarily worked on the software and simulation aspect of the project.
- **Google Summer of Code Developer**, AerospaceResearch.Net   *May'18 - Aug'18*
  - Worked on the Distributed Ground Station Network (DGSN) – a global network of small tracking stations.
  - Made a preliminary orbit determination and propagation system for Low Earth Orbit (LEO) satellites.
  - Wrote a blog report of my work: https://aerospaceresearch.net/?p=929

SKILLS

- **Programming Languages:** Python, C++, Java
- **Tools and Packages:** OpenCV, ROS, NumPy, Tensorflow, MATLAB, Simulink
- **Other:** Web Development, Android Development

OTHER ACHIEVEMENTS

- Received the Prime Minister's Research Fellowship (PMRF) Direct Entry Cycle 9 2022.
- Qualified for International Collegiate Programming Contest (ICPC) 2019 India regionals.
- Qualified for the Kishore Vaigyanik Protsahan Yojana Fellowship (KVPY) 2017.