Adhitya Sripennem

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Summary

Motivated and versatile student pursuing a Masters degree in Aerospace Engineering Sciences. Seeking research opportunities in Space Physics, Magnetosphere, Ionosphere, Satellite Instruments, and Space Mission Design. Known for a strong work ethic with a passion for contributing to cutting-edge advancements in space exploration. Looking for Graduate Research Opportunities to further extend space research.

Education

- **Master of Science in Aerospace Engineering Sciences** — Colorado, USA
  University of Colorado Boulder — *Aug 2022 - Present*
  Instrumentation Lead on CANVAS, Command & Data Handling Lead on MAXWELL
  Teaching Assistant in Astrophysical and Planetary Sciences Department for Fall '22, Spring '23, Fall '23 and Spring '24
  Courses: *Space Mission Development, Radar Remote Sensing, Lidar Remote Sensing, Aerospace Environment, Engineering Data Analysis Methods, Atmospheric Thermodynamics and Dynamics, Graduate Projects (MAXWELL)*

- **Bachelor of Technology in Aerospace Engineering** — Kattankalathur, India
  SRM Institute of Science and Technology — *Jun 2018 - May 2022*
  Researcher at Astrophilia (University Astrophysics Club) — Member of Structure, Design and Analysis team of SRM Hyperloop
  Courses: *Remote Sensing and GIS, Robotics Engineering, High Temperature Gas Dynamics, Space Mission Design and Analysis*

- **Master Diploma in Product Design and Analysis** — Chennai, India
  CADD Centre Training Services Pvt. Ltd. — *Sep 2018 - Mar 2021*
  Certification course for software: *Ansys, CATIA, NX CAD, Nastran and SolidWorks*

Skills Summary

- **Languages** Julia, Python, Embedded-C, C, C++, R programming, SQL, HTML
- **Modelling** SolidWorks, CATIA, NX-CAD, Fusion 360, Pro-E
- **Analysis** Ansys Workbench, Ansys Fluent, NX-Nastran
- **Visualization** MATLAB, Mathematica, QGIS, GMAT, Jupyter Notebook
- **Additional Skills** Linux, GitHub, LASP-HYDRA (XML), Embedded Systems, MS office, Machine Learning, AI

Research Experience & Projects

- **Command & Data Handling Lead for MAXWELL Cube Satellite** — Colorado, USA
  University of Colorado Boulder — *Jul 2023 - Present*
  - **PI: Dr. Scott Palo** (Multiple Access X-band Wave Experiment in Located in LEO)
  - Managing Flight Software with focus on CET (Command Execution Test). Currently Working on flight software interface with other subsystems (ADCS, EPS, PLDC and Comms) using LASP-HYDRA ground support emulator.

- **Instrumentation Lead for CANVAS Cube Satellite** — Colorado, USA
  University of Colorado Boulder — *Jan 2023 - Present*
  - **PI: Dr. Robert Marshall** (Climatology of Anthropogenic and Natural VLF wave Activity in Space)
  - **FPGA Testing -** Writing Test scripts to model the FPGA, using fast Fourier transforms (FFTs) to reduce the data collected from the upcoming satellite. Parse packets of data into science data for data analysis.
  - **Instrument Testing -** Testing the B-Field and E-Field instrument with Frequency Response Analysis, Sensitivity and Cross Talk. Proceeding with Day-in-the-Life test to test instrument and algorithm.

- **Mission Proposal for Density ExpLorer Triplet Array** — Colorado, USA
  Mission Design and Development for Space Science, University of Colorado Boulder — *Aug 2023 - Dec 2023*
  - Small satellite mission to study Plasmaspheric Refilling and a spatio-temporal study of Density Ducts in the Earth's Magnetosphere. [Report]
  - Prepared detailed report on Science objectives and Mission Design. Involved in Instrumentation, 3D model of the spacecraft and Science Traceability Matrix.

- **Analysis of Ionospheric data from MARSIS** — Colorado, USA
  University of Colorado Boulder — *Jan 2023 - May 2023*
  - Utilized data from MARSIS (Mars Advanced Radar for Subsurface and Ionosphere Sounding) to conduct a comprehensive analysis of the Martian ionosphere. [Report]
  - Generated ionograms and applied the Chapman profile on ionospheric soundings to derive essential parameters contributing to a deeper understanding of Mars' ionospheric characteristics.

- **Design of Solar Powered High Altitude Pseudo Satellite for Payload Launch Assist** — India
  SRM Institute of Science and Technology — *Jul 2021 - Nov 2021*
  - **University Minor Project - Project Guide:** Dr. R. Mohamed Arif
  - Design to minimise cost of small satellite launch by enabling re-usability of primary launching mechanism.

- **Space Mission Design - CubeSat and ECLSS Design** India
  Valles Marineris International *Jul 2020 - Jan 2022*
  - **Intern:** Developed a closed ECLSS system for a Space Module design for stratospheric missions
  - Development of 1.5U CubeSat Mission to observe Plant Growth through Nutrient Gel-based Hydroponics System.
- **Analytical Study of Dark Matter Mass Distribution Around Spiral Galaxies** India
  Tod'Aérs *Nov 2020 - Jul 2021*
  - **Junior Research Fellowship - Research Advisor:** Dr. Pavan Kumar
  - Studied and performed Decomposition on the Rotation Curves of 4 Spiral Galaxies. Further data analysis on the paper being done by the team, by including different types of galaxies and plotting their NFW profiles for the same.
- **Solar Physics Research** India
  Society for Space Research Education and Development *Jun 2020 - Aug 2020*
  - **Research Intern - Research Advisor:** Mr. Sundar M.N
  - Developed an ML model to predict Solar Flare at an accuracy of 0.79. Proved our hypothesis (71% Positive) on 'An inverse correlation exists between the Sunspot Area and Solar Activity Parameters'

Publication & Conference

- "Boga, P., Sripennem, A. & Bonsi, A.N. Rotational curves decomposition of spiral galaxies using least square non-linear regression. Indian J Phys 97, 2577–2590 (2023). https://doi.org/10.1007/s12648-023-02655-6
- "New approach into understanding the correlation between solar activity and Sunspot Area (SSA)", *73rd International Astronautical Congress 22*, Paris, September 2022

Awards and Activities

- Won Best Poster in "International Conference On Convergence Of Interdisciplinary Science". - February, 2022
- As a team, awarded Bronze medal in Tod'Aérs Space Sustainability Fellowship for work in Dark Matter Research. - July, 2021
- Won the 'Best of Nation' for "Space Systems Engineering" in the IV WorldSkills Russia University League Competition. - December, 2020
- Participated as team in the "Poster Challenge 2020" by Royal Astronomical Society (RAS) with 2 poster submissions. - November 2020