

MAIPAN DAVIS NITHIN

- Currently working as a junior researcher at the school of aerospace engineering, on APHRODITE, a microfluidics-based project for instant analysis of stress levels of the astronauts on the International Space Station
- Experienced in Design, Prototyping, and testing of various subsystems of cube satellites including Printed Circuit Boards, worked primarily on Telecommunication, Data processing, and paper-based microfluidics which were developed with the collaboration of different Labs across Italy.
- Integration and full system testing of both STECCO (6U Pico Satellite) and ABCS (3U cube satellite) as a team member.

EXPERIENCE

JUNE 2022 – ONGOING

APHRODITE,

- Working currently on the design of microfluidics channels and holders for the magnets for initial prototyping to verify the proper working of various concepts involved in the project

APRIL 2021 – JULY 2022

ASTRO BIO CUBE SATELLITE, 3U CUBE SATELLITE

- Designed, created manufacturing documents, and assembled a PCB for protecting and switching the radio between the microcontroller and FPGA of the satellite using Altium Designer.
- Designed and manufactured wiring harness for the interconnection of all the various subsystems and testing of the satellite on the ground.
- Worked on the testing and qualification of the Microfluidics system for Astro Bio Cube Satellite, which was a paper-based microfluidic system, to qualify the chemistry, the Amorphous sensor and the read-out electronics developed in-house at Sapienza University.
- Worked on testing, manufacturing, and qualification of 2 different designs of turnstile antenna system for Astro Bio Cube Satellite at various facilities in Italy
- Worked as a team member for developing a python-based Graphical user interface for decoding and displaying different parameters useful to know the satellites health and proper working. The GUI is even equipped with some preliminary data processing features to get a quick output on the payload data.
- Generated manufacturing, assembly, Integration, and test plan procedures for integration of the satellite and executed them.

JUNE 2020 – MARCH 2021

STECCO, 6U PICO SATELLITE

- Designed, created manufacturing documents, assembled soldered a PCB for reading the external temperature of the satellite using Altium Designer
- Worked on the Design, Manufacturing, and testing of a Dipole antenna for the satellite and integration of the same
- Generated manufacturing, assembly, Integration, and test plan procedures for integration of the satellite and executed them
- Made a Graphical User Interface based on MATLAB app Designer for decoding the telemetry data received from the satellite's operation in space

EDUCATION

GRADUATION DATE: JUNE 2021

MASTER'S IN AEROSPACE ENGINEERING, SCHOOL OF AEROSPACE ENGINEERING
SAPIENZA UNIVERSITY

Thesis Title: IMPLEMENTATION OF COMMUNICATION SYSTEM FOR STECCO PICO SATELLITE MISSION

- I worked on designing and manufacturing a Half-Dipole antenna for STECCO
- Built a Graphical user interface for decoding the telemetry of the satellite
- Manufactured a unidirectional antenna for the ground station

Thesis subject: Radiofrequency and Telecommunication.

Final Degree mark: 103/110

GRADUATION DATE: JUNE 2018

BACHELOR'S IN MECHANICAL ENGINEERING, ANNA UNIVERSITY CHENNAI INDIA

- During the four years of my bachelor's, I learned about Designing and manufacturing various products that involve the principles of motion, energy, and force.
- I developed various problem-solving skills in designing and manufacturing

Thesis Title: MECHANICAL BEHAVIOUR OF GLASS FIBER REINFORCED PMC FOR SOLAR CAR BODY

- I worked on designing the outer body of a solar car and the manufacturing process needed for manufacturing the car in-house at the Lab.

Thesis subject: Design and manufacturing

Final Degree mark: 67/100

SKILLS

PROFESSIONAL SKILLS

- Manual Dexterity
- Technological Expertise
- Team working skills
- Problem solving
- Time management
- Systems engineering

COMPUTER AND SOFTWARE SKILLS

- Microsoft office
- Solid works
- Altium Designer
- Python Basic
- VISUAL CODE STUDIO
- SOURCE TREE

MANUFACTURING SKILLS

- PCB pro-typing, assembly, and soldering
- Basic CNC Manufacturing
- Rapid prototyping with cutting plotter and mailing machine

INTERPERSONAL SKILLS

- Communication
- Problem-solving
- Teamwork
- self-motivated, and highly organized

ACTIVITIES

PARTICIPATION IN RESEARCH GROUPS

- Manufacturing and testing the antennas at the electronics lab at the main campus in the preliminary stages
- Participated in the Final testing of the antennas at the Laboratory of Electromagnetic Fields located in the ENEA Casaccia Research Centre Rome
- Involved in the testing of the initial mechanisms to be used to design the microfluidics chip in Aphrodite Project at Bologna University
- Performed various tests on the microfluidic payload of Astro Bio Cube Satellite at Pleiades Lab at the school of aerospace engineering Sapienza university with other research teams.

PARTICIPATION IN INTERSHIPS

1. Participated in Electric Solar Vehicle Championship (ESVC) and National Solar Vehicle Championship (NSVC) -Solar Vehicle -Leading a team of 34 members.
2. Participated in "Entrepreneurship Awareness Camp" organized by NSTEDB, Department of Science and Technology, Government of India.
3. Participated in Engine Workshop at Simpson Co. Ltd. In Chennai, organized by the College of Engineering Guindy, Anna University, Chennai.

LANGUAGE

Malayalam	English	Italian
Native	Full	Limited

RESEARCH GRANT WON

1. Junior researcher (Borsa di Studio) from September 2021 to September 2022 at the school of aerospace engineering Sapienza university

PUBLICATIONS

1. "Characterization and testing of the passive magnetic attitude control system for the 3U Astro Bio CubeSat", November 2022
2. "Astro Bio-CubeSat: A lab-in-space for chemiluminescence-based astrobiology experiments", April 2023
3. "In-orbit Characterization of a Lab-on-Chip Payload with Integrated Thin-Film Photosensors for Chemiluminescent Immunoassays aboard the Astro Bio CubeSat Mission", 2023
4. In-flight validation of End-Of-Life optimized Triple Junction solar cells onboard AstroBio Cubesat
5. A nanosatellite operating in the Van Allen belt: The lesson learned from the AstroBio CubeSat mission.
6. A nanosatellite operating in the Van Allen belt: The lessons learned from the AstroBio CubeSat mission
7. APHRODITE: design and preliminary tests of an autonomous and reusable photo-sensing device for immunological test aboard the International Space Station