

Rohan Chandratre

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Experienced aerospace engineer with expertise in spacecraft technology, mechanical, manufacturing and robotics.

EDUCATION

University of Michigan, Rackham Graduate School

Ann Arbor, MI

Master of Science in Engineering (MSE), Aerospace Engineering, GPA: 3.86

August 2022 – April 2024

Notable Courses: Spacecraft Technology, Astrodynamics, Space Instrumentation, Remote Sensing, Embedded Systems, Sys Mgmt.

Achievement: The Martin & Anne Sichel Award for Outstanding Achievement in the Aerospace Engineering Master's Program.

Graduate Student Instructor: Engineering in Space Environment (SPACE 478).

August 2023 – December 2023

Newcastle University, School of Engineering

Newcastle upon Tyne, U.K.

Bachelor of Engineering (BEng), Mechanical Design and Manufacturing Engineering (1st Class Hons) September 2017 – July 2020

WORK EXPERIENCE

Michigan eXploration Laboratory (MXL)

Ann Arbor, MI

Research Assistant

April 2023 – Present

- Developed novel architectures for JPL's F' flight software framework, as well as, adding UART and I2C functionality.
- Researched Delay Tolerant Networking (DTN) protocols for Interplanetary Overlay Network (ION).
- Led the Camera System, utilizing RPi and ArduCam for NASA's National Eclipse Ballooning Project (NEBP).
- Designed, programmed, manufactured and launched 3 balloons for prototyping and testing of the system and failure modes.
- Contributed to team collaborations, ensuring knowledge transfer and alignment with project goals across interdisciplinary teams.

Space Physics Research Laboratory (SPRL)

Ann Arbor, MI

Summer Intern

April 2023 – August 2023

- Researched novel methods to miniaturize Ion Mass Spectrometer for space applications using first principles.
- Simulated ions using COMSOL Multiphysics to test high-strength magnetic fields as ion mirrors.
- Investigated diamond detectors, MEMS based Spectrometers, and Multi-reflection Time of Flight (MF-ToF) Chamber.

Rhythmsoft Robotics and Automation

Nashik, India

Development Engineer

July 2020 – July 2022

- Designed, engineered, tested and delivered turnkey solutions with industrial robots that increased productivity by 25%.
- Achieved \$100K annual reduction in labour cost for automotive Original Equipment Manufacturers (OEMs).
- Engineered a 16-axis robotic press shop tooling, optimizing weight with ANSYS; selected Al and CF Onyx materials.
- Streamlined front-end for rapid programming, charted pathways for full-scale production expansion.

PROJECT EXPERIENCE

Venus Radio Occultation Observation Mission, Jet Propulsion Laboratory (JPL)

Ann Arbor, MI

Structures Lead / EPS Lead / Thermal Lead

August 2022 – January 2024

- Presented and published the research at the AIAA SciTech 2024 (<https://doi.org/10.2514/6.2024-0820>).
- Led a team of 8 to design and develop a pre-phase-A mission for Radio Occultation in Venusian atmosphere to characterize sulfur.
- Designed the 3D CAD model using SolidWorks and performed thermal performing calculations for Venusian orbit.
- Simulated Radio Occultation models for all 3 CubeSats using MATLAB for data and link budgets.
- Developed mission ConOps, aligning design with budget and timeline targets for project viability.

MC-10 & StratoSat, CubeSat Flight Lab (CFL)

Ann Arbor, MI

Systems Lead / Structures Lead / Imaging Lead

August 2022 – Present

- Spearheaded design of the experiment to raise TRL for organic photovoltaic solar cell for MXL's MC-X CubeSat mission.
- Managed teams of 10 to design, manufacture, integrate, test, and launch 3U CubeSats w/ PCB on an HAB for StratoSat.
- Collaborated with industry supplier to manufacture the CubeSat in PEEK-CF/ULTEM for next generation space materials.
- Led the systems integration and imaging team to image Earth's chlorophyll signatures using 740nm filter & 360° camera.

SKILLS

- **Engineering Software** – Autodesk Inventor, ANSYS Workbench, ANSYS Fluent, SolidWorks, SAP Business One, AutoCAD, STK, Spenvis, Visual Studio Code, RPi, Trello, Model Based Systems Engineering, SysML, COMSOL Multiphysics
- **Programming Language** – MATLAB, Python, Arduino, C, C++, Assembly, Slack API, HTML and VBA
- **Manufacturing** – CNC Machining, GD&T, Additive Manufacturing, CNC Lathe, CMM Inspection, Tapping, Soldering.