

Rohan Chandratre

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EDUCATION

University of Michigan, Rackham Graduate School

Master of Science in Engineering (MSE), Aerospace Engineering, GPA: 4.0

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.

Ann Arbor, MI

August 2022 – April 2024

Newcastle University, School of Engineering

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

Newcastle upon Tyne, U.K.

WORK EXPERIENCE

Michigan eXploration Laboratory (MXL)

Research Assistant

Ann Arbor, MI

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)

Summer Intern

Ann Arbor, MI

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.

University of Michigan, Department of Climate and Space Sciences (CLaSP)

Graduate Student Instructor

Ann Arbor, MI

August 2023 – Present

- Redesigned the curriculum, lectures and assessments for Engineering in Space Environment (SPACE 478).

Rhythmsoft Robotics and Automation

Development Engineer

Nashik, India

July 2020 – July 2022

- Designed, engineered, and delivered turnkey solutions with industrial robots that increased productivity by 25% and saved \$100,000 in labour costs annually for automotive Original Equipment Manufacturers.
- 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)

Structures Lead / EPS Lead / Thermal Lead

Ann Arbor, MI

August 2022 – Present

- 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 structure and thermal system by performing calculations and developing models for all 3 CubeSats performing RO.

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

Systems Lead / Structures Lead / Imaging Lead

Ann Arbor, MI

August 2022 – Present

- Spearheaded design of the experiment to raise TRL for organic photovoltaic solar cell for MXL's MC-X CubeSat mission.
- Drafted a proposal for NASA's CubeSat Launch Initiative (CSLI).
- 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, Assembly, Slack API, HTML and VBA
- **Manufacturing** – CNC Machining, GD&T, Additive Manufacturing, CNC Lathe, CMM Inspection, Tapping, Soldering.