Gagandeep **Thapar**

· Get your mass to Mars! ·

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Summary

Scrappy and detail-oriented Aerospace Engineering student, Lab Manager, and former Mission lead with 3+ years of aerospace experience and a knack for tackling complex problems and taking charge of projects. Experienced in both hardware and software development seeking to leverage leadership and technical background to further develop avionic systems, control systems, and autonomous flight systems on crewed launch vehicles. Extremely interested in human spaceflight, GNC/Spacecraft Controls, and puzzle-solving.

Education

California Polytechnic State University - San Luis Obispo (Cal Poly SLO)

San Luis Obispo, CA

B.S. in Astronautical Engineering with Minor in Computer Science

Aug. 2018 - Jun. 2022

- Senior Standing | Major GPA: 3.62/4.0 | Involved with Cal Poly CubeSat Laboratory, Cal Poly Cat Program, Cal Poly Indian Student Association
- Relevant Education: Orbital Mechanics, Spacecraft Controls and Dynamics, Attitude Determination and Control Systems, Modern Control Engineering, Constellation Design and Management, Numerical Analysis, Sensors, Data Structures, Object-Oriented Programming

Work Experience

Systems Architecture and Analysis Intern [Top Secret]

Redondo Beach, CA

Northrop Grumman

Jun. 2021 - Current

- Highly autonomous Top Secret intern developing internal tools after studying the System Engineering team workflow to identify key needs
- Developed modular internal tool with **10,000+ lines of code** in **MATLAB** to dictate ECR Approval Process depending on classification, relevant documentation, appropriate threads, and hundreds of various interdependencies **cutting identification time by 97%**
- Wrote **700+ lines of code** to develop internal tool in a **C-based language** to streamline ECR (Engineering Change Request) Board approvals and automate metric tracking
- Wrote **500+ lines of Python code** to create an internal tool to track TBX entries and automate TBX metric tracking and visualization for management and customer consumption

IRAD Systems Engineering Intern [Non-Disclosure Agreement]

Torrance, CA

MOOG Aircraft Group

Jun. 2020 - Aug. 2020

- Systems Engineering Intern on IRAD (Independent Research and Development) program with Moog Aircraft Group developing new product in an unsaturated market for military use
- Developed generic and customer-specific system-level architecture for brand new product line using programs such as Visio, Microsoft Office
- Leveraged **IBM DOORS** to develop, track, and manage **1000+ requirements**
- Reviewed, cross-referenced, and validated **1000+ requirements** to ensure consistency and intent across the multiple designs
- Utilized **Subversion (Tortoise SVN)** to store, track, and share relevant material
- Independently researched **10+ MIL-spec standards and ICDs** (Interface Control Documents) to develop valid and useful requirements

Cal Poly CubeSat Lab Manager

San Luis Obispo, CA

Cal Poly CubeSat Laboratory

Apr. 2020 - Current

- Manager for Cal Poly CubeSat Laboratory with **100+ active members** and **10+ industry partners**
- Led restructuring efforts in Lab to better reflect industry organization with subsystem focus as opposed to discipline/major focus
- Point of Contact for any external communications with other students, different schools, and other companies
- Point of contact for **15+ Mission and Team Leads** to gather updates, give direction, and represent staff updates
- Manage and supervise lab-wide events such as Leads Meetings, Lab-Wide Meetings, recruitment efforts, and CubeSat Developer's Workshop
- Represent the CubeSat Lab in IRA (Independent Research Association) and Department meetings

XCUBE Mission Lead | Lead Systems Engineer

San Luis Obispo, CA

Cal Poly CubeSat Laboratory

Oct. 2019 - Jun. 2021

- Mission Lead for joint project with USRA and NASA to design and create a new platform for airborne science experiments and intra-orbital CubeSat testing on ER-2 and other high-altitude aircraft
- Managed team of **10+ students** for the **$100,000+ project** through requirements development, design, review, manufacturing, assembly, integration, test, and delivery phases during the COVID pandemic
- Regularly reported to NASA and USRA the progress of the project with an emphasis on reviewing past work and presenting future work and rationale
- Aided structures team in modeling the system in co-ordinance with the requirements and given specifications
- Wrote and ran **40+ procedures** as I directed go/no-go gates and led the assembly, integration, delivery efforts
- Acted as main point of contact for any design-based decisions regarding the structure, operations, and top-level electrical functions
- Ran testing with the electronics team on high-power board (up to 500W), multi-channel communications board (SPI, I2C, SERIAL, ETHERNET), and actuator deployment board
- Developed and managed system level requirements for the XCube System