Asuthosh Conda Ramesh

Via Cardinale Branda Castiglioni,2/1, Milano. Italy, CAP:20156

+39 3444014354 | asuthoshramesh1997@gmail.com | linkedin.com/in/asuthoshcr

Personal Profile

A Politecnico Di Milano graduate student who is enrolled in the Space Engineering programme. Dedicated to Space Systems Engineering and Astrodynamics, having two or more years of expertise in IT and nearly two years experience in Flight dynamics and Space education, and specialising in Systems Engineering, algorithms, and Flight AOCS/GNC. Searching for roles mostly in Systems and Software Engineering, Spacecraft Operations & Control and Mission Planning Flight Dynamics positions.

Education

Politecnico Di Milano — *Milano, Italy*

MSc in Space Engineering — *Sept 2020 - July 2023*

- **Courses Completed:** Space Systems Engineering and Operations, Payload Design, Orbital Mechanics, Spacecraft ADCS, Spacecraft GNC, Modelling and Simulation of Aerospace Systems, Space Structures, Heat Transfer and Thermal Analysis, Space Propulsion, Remote Sensing for Earth Observation, Telecommunication systems, Spacecraft Communications and Positioning Systems

Anna University — *Chennai, India*

BSc in Mechatronics Engineering — *May 2014 - May 2018*

- Graduated with First Class
- **Thesis:** Mobile Robot Control using Natural Language Processing

Work Experience

Space Applications Services NV/SA — *Brussels, Belgium*

Flight Dynamics Software Engineer Intern - Master Thesis — *Oct 2022 - Apr 2023*

- **Master Thesis:** Mission Planning Software development for Earth Observation Mission - ESA ALTIUS
- Low-Level Programming for technical computation and integration achieved using JAVA
- Used OREKIT (ORbit Exploration KIT) - Space Flight Dynamics Library for Mission Path Planning
- Implemented OEM, TLE Parsing, and Orbit Propagator for the mission-specific scenario
- Developed Scientific Computation model for Apparent Position, Visual Magnitude, and parsing of data to and from JSON files for Targets
- Implemented Various Detectors to achieve the critical mission objectives
- Verification of results produced, with GMV Focus Suite software and NASA SPICE
- **Technical Skills:** C++, JAVA, Ubuntu Linux, Linux tools, VSCode, Git, NASA GMAT, GMV, OREKIT, Software and Systems Integration

Space Applications Services for European Space Agency, ESEC — *Redu, Belgium*

CubeSat and Space Development — *Apr 2022 - Jun 2022*

- Preparation and testing of the CubeSat Infrastructure Setup - 1U CubeSat - ESAT - Theia Space
- Supporting the preparation, implementation, test, and delivery phases of complex technical training and educational courses
- Liaison with subject matter experts and students
- Pre-phase Implementation of the Course at ESA - ESTEC Concurrent Design Facility with SMEs
- **Courses Involed:** - CubeSat Summer School, CubeSat Hands-On Training, Standardization and Space Debris Training Course

Indian Space Society — *Remote, Milan*

Space Ambassador — *Jan 2021 - Sep 2021*

- Creating Materials for the Spacecraft Navigation - Orbital Mechanics, Propulsion Systems, Attitude and Orbit Control Systems
- Monitoring the delivery of the lectures and supporting answers in QNA's

Accenture - India — *Chennai, India*

Software Engineering Analyst — *May 2018 - Dec 2020*

- Technical Domain - iPaaS, Workflow - DevOps Model
- Development and Testing of product baseline code using PDIT and RPA Tools
- Product Design using Oracle Siebel and PL to SQL
- **Technical Skills:** C++, JAVA, Windows, Linux tools, VSCode, Eclipse, SQL, BluePrism

University Projects

Preliminary Design of a Cubesat Mission - VABBE: Van Allen Belts Bounds Explorer — *Milano, IT*

Politecnico Di Milano — *Feb 2021 - May 2021*

- Defining a mission high-level goal consistent with the current space demand.
- Awareness of actual space missions/ future missions.
- Knowledge of a high-level sizing of all the subsystems needed by the mission to operate properly - TTMTC, TCS, Propulsion unit, ADCS, EPS.
- Complete Mission Life Cycle analysis until End of Disposal of mission.

Preliminary Design (Phase A) of an Optical Payload for Earth Observation - PHYCO: Phytoplankton Concentration Observation *Milano, IT*

Politecnico Di Milano *Sep 2021 - Jan 2022*

- Design of Optics using Zemax Studio.
- Defining Sizing of Subsystems in a Constrained Level.
- Analysis and Implementation of Mission Criticalities into Subsystems and Instrument Level.
- Definition of requirements derived from the different subsystems.

Deep Space Telecommunications - Earth - Saturn Downlink Analysis at Ka-Band - MATLAB *Milano, IT*

Politecnico Di Milano *Sep 2021 - Jan 2022*

- Study of Attenuation effects for different scenarios.
- Derivation of Transmitter Antenna characteristics.
- Analysis of Ground Station Link with different Orbits.
- Parametric Study to understand the change in parameters constraint - (Bit Error Rate, Frequency, Data Rate, Transmission Power, Elevation angle, Modulation Technique)

Design of Planetary and Interplanetary Explorer Mission *Milano, IT*

Politecnico Di Milano *Sep 2020 - Jan 2021*

- Feasibility study of Interplanetary mission with the predefined targets.
- Design Process aligned with Patched-Conics method.
- Grid Search and Advanced Optimization Algorithms used to find the best possible transfer windows and Total Mission Cost. (Delta - V)
- Orbit Analysis, Ground Tracks Estimation, and Orbit perturbations were concluded with the design.
- Modeling of Perturbations achieved considering Second Jonal harmonic (J2) and SRP.

Mobile Robot Control using Natural Language Processing *Madurai, IN*

Anna University *Jan 2018 - May 2018*

- Mobile Rover defined using Engineering Drawing
- Selection of Components done using proper electronics and Mechanical calculations (Raspberry Pi, Motor Driver, Sensors, Battery, Mic and Speaker, Control Circuit)
- Offline Commands achieved using Machine Learning with Open Source API - Jasper

Skills

Programming	C++, JAVA, Python, SQL
IDE's	Visual Studio Code, PTC CREO, Arduino, MATLAB, Simulink, LABVIEW
Toolkit and API's	NASA SPICE, NASA CEA, ESA - SPENVIS, STK-AGI (L1 Certified), NASA GMAT, Orekit (Java space dynamics library)
Hardware and Interfaces	Raspberry PI, ARDUINO, AVR Micro-controller, SENSORS AND ACTUATORS, Electronic soldering
Miscellaneous	Linux, Shell (Bash/Zsh), LaTeX(Overleaf), Tableau, Microsoft Office, Git, Windows, IBM DOORS
Soft Skills	Ability to analyze complex technical information, Excellent problem solver, Teamwork, Documentation, Excellent Presentation

Honors and Awards

2022	**Honors, European Space Agency** - Coordinated for ESA Academy Standardization Training Course 2022	*Belgium*
2021	**Winner, EBEC** - Regional Winner and National Runner up for Team design	*Italy*
2020	**Winner, ASI & Airbus** - ActInSpace® 2020 "SPAZIO POLIMI / MOONSWEEP"	*Italy*

Languages

English	Professional proficiency
Italian	Limited Working proficiency
French	Elementary proficiency

Additional Information

Current Residence	Italian - EU, Student - Work Permit
Citizenship	Indian
Available Start Date	As Soon As Possible