



विद्यार्थिनियोगादिकाः

ADITYA KARAN

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Summary

13+ years at ISRO leading complex technology programs. Brings a systems perspective to strategic decisions at the intersection of technology, organizations, and business.

Professional Experience

Project Manager, Mechanical Systems | Gaganyaan Human Spaceflight Programme | ISRO (URSC), Bengaluru

- Led system engineering of India's first human-rated spacecraft (₹500 cr Service Module within a ₹5,500 cr programme), directing 20+ teams and 100+ engineers across 6 centres to finalise architecture, trade-offs and integration through to the first crewed mission.
- As Member Secretary of an 8-expert docking committee, led India's delegation in joint-venture negotiations with NASA and ESA, building the proposal from zero and securing ESA's Letter of Intent (May 2025) for joint development of an ISS-compatible international docking system for India's crew module.
- Benchmarked test strategy against other international human spaceflight missions (Apollo and Orion) and proposed an optimised approach that cut thermovac test time from 45 to 20 days; recommendation accepted at a Director-level review.
- Drove budget planning (₹500 cr), procurement strategy and master scheduling (WBS/PERT) for mechanical systems across 20+ teams, maintaining zero critical-path slippage over a multi-year programme including COVID-19 lockdowns.
- Led a mission-critical mass-saving campaign that reduced orbital mass by 10%, delivered within a record six months against competing subsystem demands.
- Delivered 250+ flight-qualified avionics housings (₹20 cr) across four mission variants under zero-fault-tolerance conditions, managing a multi-vendor supply chain with zero critical-path slippage.
- Established India's first digital Configuration Control Board for human spaceflight (Siemens Teamcenter PLM) as Member Secretary, enabling 100% change traceability, a mandatory human-rating requirement.
- Led programme risk management, presenting critical-path items and mitigation plans through eight levels of review up to the ISRO Chairman; co-authored ISRO's Human Spaceflight 2047 vision for Chintan Shivir 2025.

Project Manager (NISAR) & Design Engineer (Chandrayaan-2 Rover) | ISRO (URSC), Bengaluru

- Held end-to-end ownership of all four Chandrayaan-2 Moon rover mechanisms (₹978 cr mission), leading a 5-member team from design to flight clearance and delivering Engineering, Qualification and Flight models with all tests passed.
- Diagnosed a critical rover mechanism anomaly mid-programme; root-cause redesign eliminated a 1.5 kg counterweight (6% mass cut on a 25 kg rover, ~₹1 cr saving) with zero schedule impact.
- Owned the mission-critical mechanism (₹2 cr) on the \$1 bn NASA-ISRO NISAR satellite, driving requirements to an optimised design that deployed successfully on orbit after the 2025 launch.
- Drove a 5× production scale-up of ISRO's in-house paraffin actuator (4 to 20 units/year) with no new capital investment, achieving 100% on-orbit success across 5 satellite missions.
- Led vendor selection and price negotiation to transition mechanism production (12 satellites, ₹15 cr) from ISRO to L&T, helping build India's private aerospace supply chain.

Quality Assurance Engineer, Spacecraft Mechanisms & Integration | ISRO (URSC), Bengaluru

- Served as quality gatekeeper for 10+ satellite programmes (>₹2,000 cr) spanning India's strategic space infrastructure (IRNSS, GSAT-7, AstroSat, Mars Orbiter Mission), clearing 19 solar array deployment mechanisms for flight with zero on-orbit failures and 100% deployment success.
- Led QA surveillance through assembly, integration and test for Mangalyaan (₹450 cr), the mission that made India the first country to reach Mars on its debut attempt (2014).
- Conducted FMECA and FTA reliability analyses and drove Non-Conformance Report closure to board sign-off, reducing programme risk through corrective action.

Education

B.Tech, Aerospace Engineering, IIST Thiruvananthapuram (ISRO university; full Govt. of India scholarship)

Accomplishments and Awards

- Led the multi-year technical engagement resulting in the ISRO-ESA Intent of Cooperation (May 2025) for joint development of an international docking system for India's crew module.
- Delivered the NISAR Solar Array Deployment Mechanism, live on orbit on the \$1 bn NASA-ISRO satellite (2025 launch).
- First Prize: IEEE SPACE 2024 (Power Subsystem); First Prize: TOLIC Hindi Technical Seminar 2023; First Prize: Satellite Technology Day 2017, URSC.
- Published a paper in the Springer proceedings Reliability and Safety Assessment for Safety Critical Systems (NCRS 2025).
- 6 publications (2015-2026), including ESMATS 2025 (Europe) and IEEE SPACE 2024.

Licenses & Certifications

- GMAE-09, General Management (Aerospace), IIM Bangalore & Toulouse Business School, France
- Certifications, Centre for Continuing Education, IISc Bengaluru: Project Management, French, Vibration &

- Noise Control, Structural Analysis & Design Optimization.

Co / Extra-curricular

- Reviewed a human-spaceflight startup pitch under IIMA Ventures, evaluating technology readiness, business model and go-to-market strategy.
- Participated in the INSEAD Venture Competition (IVC-2024); won \$1,000 in AWS credits. Life Member, INSARM (Indian National Society for Aerospace and Related Mechanisms).