

Dr. Rehan Mahmood

Director, SSTRL | Associate Professor, IST | Satellite Communications and CubeSat Programs

Islamabad, Pakistan
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Selected projects, media, and profile

20+ Years Satellite technology and engineering education	USD 750k Competitive funding secured for SSTRL 5 Major CubeSat and lunar mission programs	30+ Researchers and staff led in SSTRL
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Executive Profile

Senior academic-engineer and research leader with more than two decades of experience in satellite technology, communication engineering, CubeSat development, laboratory establishment, engineering education, and technical program leadership. Currently Director and Principal Investigator of the Small Satellite Technology & Research Lab at the Institute of Space Technology, Islamabad. Combines hands-on mission experience with academic program development, graduate teaching, proposal writing, grant-winning, and multidisciplinary team leadership. Particularly well suited to Gulf roles involving faculty leadership, CubeSat and small-satellite capability building, engineering lab establishment, executive training, and applied research in satellite communications, embedded systems, wireless systems, and space systems engineering.

Core Expertise

Satellite communications and link budgeting
Systems engineering, testing, integration, and AIT support
Graduate curriculum design and lab establishment

Executive training, summer schools, and workshops

CubeSat and small-satellite program development
Frequency coordination and ground-segment coordination
Research grants, proposal writing, and technical management
Embedded electronics and engineering education ecosystems

Selected Career Highlights

- Secured USD 750k in competitive funding to establish SSTRL under the National Center of GIS and Space Applications, and currently leads the lab's technical, financial, hiring, and infrastructure development functions.
- Contributed to major small-satellite programs including ICUBE-1, SSS-2A, ICUBE-N, ICUBE-Q, and ICUBE-CSAT, with experience spanning systems engineering, frequency coordination, link budgeting, testing, and project leadership.
- Helped establish CubeSat laboratory capability during visiting consultancy at Sultan Qaboos University, Oman, while teaching undergraduate Electronics II and Analog & Digital Communications.
- Designed and reviewed graduate courses in Satellite Communication, Satellite Engineering, and Electronics for Space Applications, and helped establish undergraduate laboratories in electronics, communications, controls, and antenna design.
- Led or supported successful research proposals including SSTRL funding as PI, a lunar CubeSat program as Co-PI, and APSCO-backed CubeSat work as Co-PI.

Professional Experience

Director and Principal Investigator

Small Satellite Technology & Research Lab, Institute of Space Technology

Mar 2020 - Present

Islamabad, Pakistan

- Lead the strategic and operational development of SSTRL, including staffing, procurement, infrastructure, laboratory planning, and program execution.
- Manage a multidisciplinary team of more than 30 employees and researchers working on satellite and space-technology initiatives.
- Drive proposal development, partnerships, and research execution for small-satellite and space systems capability building.

Associate Professor

Institute of Space Technology

Dec 2021 - Present

Islamabad, Pakistan

- Teach graduate courses in Satellite Communication, Satellite Engineering, and Electronics for Space Applications, and undergraduate courses in Communication Systems, Electronics, and Spacecraft Engineering.

- Supervise postgraduate theses and undergraduate capstone projects in satellite engineering and communication systems.
- Support satellite-related academic and research collaboration with national and international partners.

Assistant Professor / Lecturer / Assistant Manager

Institute of Space Technology

Sep 2002 - Nov 2021

Islamabad, Pakistan

- Progressed through academic and technical leadership roles while contributing to Pakistan's small-satellite and engineering education ecosystem.
- Helped develop undergraduate teaching laboratories and academic infrastructure in electronics, communications, controls, and antenna design.

Visiting Consultant

Sultan Qaboos University

Sep 2024 - Jan 2025

Muscat, Oman

- Taught undergraduate Electronics II and Analog & Digital Communications.
- Contributed to CubeSat laboratory establishment and capability development.

Chief Technology Officer

Space Systems Pvt. Ltd.

2015 - Present

Pakistan

- Lead technical proposals, feasibility studies, frequency coordination, link budgeting, and systems engineering support for satellite engineering initiatives.
- Support CubeSat development services and applied technical consulting in small-satellite systems.

Selected Satellite and Program Portfolio

ICUBE-Q	Lunar CubeSat program onboard Chang'e-6; contributed to mission engineering and program development.
ICUBE-N	National CubeSat of Pakistan; served in project leadership and program-building roles.
SSS-2A	3U CubeSat under APSCO collaboration; contributed to link budgeting and frequency coordination.
ICUBE-1	Pakistan's first university CubeSat; worked on feasibility, development, technical management, and related systems work.
ICUBE-CSAT	Classroom Satellite initiative supporting hands-on engineering education and training.

Education

PhD, Satellite Engineering

Beihang University

2014 - 2018

China

Thesis: Joint source-channel coding for the transmission of deep-space images.

MSc, Satellite Communications

University of Surrey

2005 - 2006

United Kingdom

Thesis: Impact of ACM on the performance of mobile-satellite systems. Awarded the Cable & Wireless prize for best overall performance in the school.

BSc, Electrical Engineering

University of Engineering and Technology, Taxila

1998 - 2002

Pakistan

Selected Publications and Professional Standing

Selected publications include work on ICUBE-Q mission design, camera modules for CubeSats, on-board software design for nanosatellites, and robust image transmission for deep-space scenarios. Also active in executive training, CubeSat summer schools, school outreach, and engineering workshops. Memberships and affiliations include APSCO Space Law Alliance and the Pakistan Amateur Radio Society; also holds an Amateur Radio License.