



Sreeja NAG

Home Country
India

Degree
PhD in Space Systems Engineering

Expertise
Satellite Systems,
Exploration Geophysics

Research Focus
Satellite Design and Operations

Host University
Massachusetts Institute of
Technology, United States

Fellowship Awarded
2012

Sreeja Nag was born and brought up in Pune, India.

She has Bachelor's and Master's degrees in Exploration Geophysics from the Indian Institute of Technology, Kharagpur, India. Sreeja's Master's thesis, prepared in 2009 in collaboration with the University of California, Berkeley, United States, was an analysis of satellite data to interpret faults in the San Francisco Bay Area. In 2012 she gained two further Master's degrees from the MIT, United States. These were in Aerospace Engineering and Technology Policy. Her dual Masters' thesis was on the usage of collaborative competition for crowdsourcing spaceflight software and for STEM Education through the SPHERES Zero Robotics program.

Her current research is to design nano-satellite constellations for Earth observation missions aimed at estimating Bi-Directional Reflectance Distribution Functions (BRDF), and understand the trade-offs between technical performance and programmatic complexity. Small satellites are more affordable and quicker to develop than traditional large systems, and can make space-based Earth observation accessible to developing countries. BRDF is needed for correction of view angle and illumination angles in image standardization, derivation of surface albedo, climate modeling and the calculation of radiative forcing at the top of the atmosphere, land cover classification, cloud detection and many other applications. Her research is in collaboration with NASA Goddard Space Flight Center and NASA Ames Research Center.

While pursuing her PhD, Sreeja plans to establish and maintain professional collaborations with national and international space research organizations including the Indian Space Research Organization. Meanwhile, she intends to complete her training for a helicopter flying license, which began in 2011.

Sreeja will graduate in May 2015. In the long-term, she hopes to create an independent educational venture in India based on the principles of creative, hands-on learning and equality of students.