

Ramchander Rao Bhaskara

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Academic Appointments

Dartmouth College Department of Computer Science <i>Postdoctoral Associate Advised by Prof. Adithya Pediredla</i>	Dec 2025 – Present
Texas A&M University Department of Aerospace Engineering <i>Research Engineer</i>	Sep – Dec 2025

Education

Texas A&M University PhD in Aerospace Engineering <i>Advised by Prof. Manoranjan Majji</i>	2021 – 2025
Texas A&M University M.S. in Aerospace Engineering <i>Advised by Prof. Manoranjan Majji</i>	2019 – 2021
National Institute of Technology, Trichy BTech in Instrumentation and Control Engineering	2013 – 2017

Awards

Future Leaders in Aerospace Symposium Smead Aerospace Engineering Sciences, CU Boulder <i>Invited participant, competitive selection</i>	2026
Best Talk Award 🔗 Postdoctoral Research Day, Dartmouth College and University of New Hampshire	2026
Excellent Reviewer Journal of Guidance, Control, and Dynamics (JGCD)	2025
Guidance, Navigation, and Control (GNC) Graduate Award 🔗 American Institute of Aeronautics and Astronautics <i>3,500 USD</i>	2024
Graduate Excellence Fellowship Texas A&M University <i>5 × 1,000 USD</i>	2020 – 2024
Travel Award Department of Aerospace Engineering, Texas A&M University <i>500 USD</i>	2023, 2024
Finalist, GNC Graduate Student Paper Award AIAA SciTech Forum <i>500 USD</i>	2023
Best Student Research Paper Award 🔗 Digital Avionics Systems Conference (DASC) <i>500 USD</i>	2022
Travel Grant Office of Graduate and Professional Studies, Texas A&M University <i>500 USD</i>	2022
ASIE Scholarship American Society of Indian Engineers and Architects, Houston <i>1,000 USD</i>	2022
NASA TechLeap Prize – GNC Lead 🔗 NASA Flight Opportunities Program <i>100,000 USD towards flight experiment</i>	2021
RECT Silver 72 Scholarship National Institute of Technology, Trichy <i>15,000 INR per year</i>	2015 – 2017

IIT Madras Summer Research Fellowship 2016
Department of Aerospace Engineering, IIT Madras | *Granted but declined*

Other Research Experience

Cornell University 2025
Mechanical and Aerospace Engineering | *SmallSat Mission Design School*

NASA Jet Propulsion Laboratory 2022, 2023
Mobility and Robotic Systems Section | *Research Intern*

iRunway India (now UnitedLex) 2017 – 2019
Intellectual Property | *Associate (5G/LTE network architecture)*

Publications

Development and Validation of Velocimeter Lidar Simulator [↗](#)

Ramchander Rao Bhaskara, Roshan T. Eapen, and Manoranjan Majji
AIAA SciTech 2025

Searching for Ariel’s Aliens with the CRISPI Mass Spectrometer SmallSat Flyby Mission [↗](#)

Zach Ulibarri, S Jamal, A Alex, L Arzoumanian, Ramchander Rao Bhaskara, A Chadwick, S Gayen et al.
American Geophysical Union 2025

Quantized State Estimation for Linear Dynamical Systems [↗](#)

Ramchander Rao Bhaskara, Manoranjan Majji, and Felipe Guzmán
Sensors 2024

Icy Moon Surface Simulation and Stereo Depth Estimation for Sampling Autonomy [↗](#)

Ramchander Rao Bhaskara, G Georgakis, J Nash, J Bowkett, M Cameron, A Ansar, P Backes, and M Majji
IEEE Aerospace Conference 2024

Differentiable Rendering for Pose Estimation in Proximity Operations [↗](#)

Ramchander Rao Bhaskara, Roshan T. Eapen, and Manoranjan Majji
AIAA SciTech Forum 2023 | *Finalist, GNC graduate student papers*

An FPGA Framework for Interferometric Vision-Based Navigation (iVisNav) [↗](#)

Ramchander Rao Bhaskara, Kookjin Sung, and Manoranjan Majji
41st Digital Avionics and Systems Conference 2022 | *Best student research paper*

FPGA Hardware Acceleration for Feature-Based Relative Navigation Applications [↗](#)

Ramchander Rao Bhaskara and Manoranjan Majji
AAS/AIAA Astrodynamics Specialist Conference 2022

Vision and Inertial Sensor Fusion for Terrain Relative Navigation [↗](#)

A. Verras, R. Eapen, A Simon, M Majji, Ramchander Rao Bhaskara, C. Restrepo, and R. Lovelace
AIAA SciTech Forum 2021

Interferometric Vision-Based Navigation Sensor for Autonomous Proximity Operation [↗](#)

Kookjin Sung, Ramchander Rao Bhaskara, and Manoranjan Majji
39th Digital Avionics and Systems Conference 2020

Under Review

A Paper on Laser-Based Depth Scanning Instrument

Ramchander Rao Bhaskara, Dhawal Sirikonda, Omkar Vengurlekar, Juhyeon Kim, Suren Jayasuriya, Adithya Pediredla

A Paper on Event-Based Sensors for Low-Bandwidth Surveillance

Nevindu Batagoda, Ramchander Rao Bhaskara, Christian Metzler, Adithya Pediredla

On the Low-Pass Filter Design for Digital Phasemeter

Ramchander Rao Bhaskara and Manoranjan Majji

Other Publications

Real-Time Signal Processing and State Estimation for Spaceflight Applications [↗](#)

Ramchander Rao Bhaskara

PhD Dissertation, supervised by Prof. Manoranjan Majji

Hardware Implementation of Navigation Filters for Automation of Dynamical Systems [↗](#)

Ramchander Rao Bhaskara

Master's Thesis, supervised by Prof. Manoranjan Majji

Precision Depth Sensing: Space Science to Robotics

Ramchander Rao Bhaskara

Guarini Poster Session, Dartmouth College, 2026

Toward Development and Validation of Velocimeter LiDAR Simulator

Ramchander Rao Bhaskara and Manoranjan Majji

2024 AAS Guidance, Navigation and Control Conference., Breckenridge, Colorado

NaRPA: Navigation and Rendering Pipeline for Astronautics [↗](#)

Roshan T. Eapen*, Ramchander Rao Bhaskara*, and Manoranjan Majji

Poster, Lunar Surface Innovation Consortium 2021

Physics-Based Modeling of Selective Catalytic Reduction System and Reduced Order Dynamics [↗](#)

Ramchander Rao Bhaskara

Undergraduate Thesis, supervised by Prof. Umapathy Mangalanathan

Talks

Precision depth sensing: space science and robotics

Future Leaders in Aerospace Symposium | *Invited Talk (upcoming)*

University of Colorado Boulder | 2026

Postdoctoral Research Day

Dartmouth College | 2026

Optimal Estimation Under Uncertainty

Visual Computing Seminar | *hosted by Prof. Adithya Pediredla*

Dartmouth College | 2026

On-Board Sensing and State Estimation for Opto-Mechanical Inertial Sensors

Starlink (SpaceX) | *hosted by Javier Vicens (GNC)*

Seattle | 2025

Computer Vision for Icy-World Exploration

Machine-Ground Interaction Consortium (MaGIC) | *Invited Talk*

University of Wisconsin-Madison | 2025

On Sensor Simulations for Planetary Exploration

Visual Computing Seminar | *Invited Talk*

Dartmouth College | 2025

Sampling Autonomy for Europa Lander

Jet Propulsion Laboratory | *Intern Talk*

Pasadena, CA | 2023

Study of Topology of Icy Moons

Jet Propulsion Laboratory | *Intern Talk*

Pasadena, CA | 2023

Texas A&M ScORE: Space Object Rendering Engine

Lunar Surface Innovation Consortium | *Symposium*

Johns Hopkins University | 2021

Funding

Sensing for Climate-Resilient Mobility: Enabling the Energy Transition Irving Seed Grant and Pilot Funding Program <i>Co-PI: Prof. Adithya Pediredla</i> <i>Selected, final phase</i>	2026
Developing Sensor Systems for Adverse Weather Conditions Neukom Postdoctoral Fellowship, Dartmouth College <i>Finalist, Not selected</i>	2026
Event-Based Sensors for Meteoroid Tracking NASA Postdoctoral Program <i>Co-PI: Paul Abell (NASA JSC)</i> <i>Not selected</i>	2025
High-Fidelity Terrain and Sensor Simulation Pipeline JPL Strategic University Research Program <i>PIs: Manoranjan Majji & Georgios Georgakis.</i> <i>Main author, Not selected</i>	2024

Academic Service

American Institute of Aeronautics and Astronautics (AIAA) Sensor Systems and Information Fusion (SSIF) <i>Technical Committee</i>	2024 – Present
AIAA SciTech Forum Guidance, Navigation, and Control (GNC-44) <i>Session Chair</i>	2025
AIAA SciTech Forum Sensor and Algorithm Analysis (SEN-02) <i>Session Chair</i>	2025

Reviews

Journal of Guidance, Control, and Dynamics (JGCD)	2025
Journal of Astronautical Sciences (JAS)	2024, 2025
IEEE Control Systems Letters	2025
American Control Conference	2022 – 2025
AIAA SciTech Forum	2025
Transactions on Computers	2023

Teaching

AERO 423: Orbital Mechanics Texas A&M University <i>Teaching Assistant</i> 🔗	2024, 2025
Digital Signal Processing Texas A&M University <i>Department Tutorial Lecture</i>	2023

Mentoring

Dhawal Sirikonda Dartmouth College <i>PhD research in digital signal processing</i>	2026
Nevindu Batagoda Dartmouth College <i>PhD research in image signal processing</i>	2026
Piren Li Dartmouth College <i>MS research in optics</i>	2026
Omkar Vengurlekar Arizona State University <i>Graduate research in audio signal processing</i>	2026
Team Lunatyx PI for Lunar Autonomy Challenge 2025 <i>2 graduate and 3 undergraduate students, TAMU</i>	2025

Omar Mohmand & Marco Peredo 2024
Texas A&M University | *Undergraduate research: Trajectory design for Mars rendezvous*

Volunteering

Montshire Museum of Science - Vermont 2026
Astronomy Day | *Speaker, Astronomer in the House*

Aerospace Engineering Graduate Student Association (AEGSA) 2023 – 2025
Texas A&M University | *Professional Development Chair* [🔗](#)

Texas A&M University 2022 – 2025
Science and Astronomy Festival | *Volunteer, Outreach Demonstrations*

Bhumi NGO 2017 – 2019
Renuka High School, Bangalore | *Volunteer Physics Teacher*

Software

GUISS: Graphical Utility for Icy Moon Surface Simulations [🔗](#) 2024