Anant Telikicherla

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Education

2024–26 **Ph.D.**, Aerospace Engineering Sciences, University of Colorado Boulder, USA
Advisor(s): Thomas N. Woods, Robert A. Marshall
Thesis Title: Towards Improved Solar Flare Nowcasting: Flare Onset Physics, Early Alert Methodology, and Next-Generation Instrumentation Development
GPA: 4.0

2022-24 **M.S.**, Electrical & Computer Engineering, University of Alberta, Canada
Advisor(s): Robert Fedosejevs, Ian R. Mann
Thesis Title: High Energy Particle Telescope Suite Design: Electron Microburst Detector and Read-out Electronics
GPA: 4.0

2016-20 **Bachelor of Technology,** Electronics and Communication Engineering (Avionics), Indian Institute of Space Science and Technology, India

Professional Experience

Jan 2021–Jun 2022 Scientist/Engineer-SC, Assembly, Integration, and Testing Division, Human Spaceflight Center, Indian Space Research Organization, Bangalore, India

Research & Teaching Experience

Aug 2024–Present Graduate Research Assistant, Laboratory for Atmospheric and Space Physics, Univeristy of Colorado Boulder

Aug 2022–Jun 2024 Graduate Research Assistantship Fellowship, Laser-Plasma Laboratory, University of Alberta, Edmonton, Alberta

Jan 2023–May 2023 Teaching Assistant, ECE212: Introduction to Microprocessors, University of Alberta, Edmonton, Alberta

Jan 2020–May 2020 Visiting Scholar (NTU-India Connect Program), Satellite Research Center, Nanyang Technological University, Singapore

May 2019–Aug 2019 Summer Research Intern, Laboratory for Atmospheric and Space Physics, University of Colorado Boulder

Spaceflight Missions & Instrumentation

Sounding Rockets

SDO-EVE Calibration Rocket (Woods 36.406) (2024–Present; *In-development*) — Instrument calibration, integration, and testing; SEUSHI X-ray instrument characterization.
PEPPER-X Sounding Rocket Instrument (Koehler 46.402) (2022–24; *flown Aug 13, 2024*) — Student Lead, Particle Detector Instrument; detector development, integration, and testing.

Small Satellites & CubeSats

SunCET (2024–Present; *In-development*) — Spacecraft and DualSPS instrument integration and testing. Telescope GSE software development.

MinXSS / DAXSS (2022–Present; *flown*) — Solar X-ray data analysis and spectral modeling.
INSPIRESat-1 (2018–22; *flown*) — On-board computer design, integration, and testing.
SCOOB-II (2022–23; *flown*) — Flight software development, spacecraft integration, and testing.

Microsatellites & Human Spaceflight
RADICALS (2022–24; *in development*) — High-energy particle telescope instrument electronics design, Microburst detector development.
ARCADE (2020–21; *flown*) — Spacecraft interface board development, Spacecraft integration.
ISRO Gaganyaan Test Vehicle Demonstration 1 (TV-D1) (2021–22; *flown October 21, 2023*) — Crew module electrical integration and testing.

Research Proposals & Grants

Awarded:
1. "*Hard X-Ray Photometer for Space Weather Applications*," **Role: Principal Investigator (PI)**; Amount: $100,000; LASP Internal Research and Development (IRD) 2026-27 Program.
2. "*DAXSS Extended Mission for New Studies of Solar Active Region Abundance and Thermosphere Density Variations in 2025–2026*," PI: Thomas N. Woods; **Role: Postdoctoral Researcher**; Amount: $49,000; NASA Heliophysics Division.
3. "*Payload for Energetic Particle Precipitation Education and Research eXperiment (PEPPER-X)*," PI: David Milling; **Role: Instrument Lead**; Amount: $150,000 CAD; Canadian Space Agency Flights and Fieldwork for the Advancement of Science and Technology (FAST) 2023.

Submitted/Pending:
1. "*Next Generation Solar X-ray Imaging Spectrometer (NG-SXIS): A Compact Instrument for Near-real-time Space Weather Alerts*," PI: Andrew Jones; **Role: Postdoctoral Researcher**; Amount: $1.34M; NASA Heliophysics Technology and Instrument Development for Science (H-TIDeS).
2. "*Flare Precursors as Predictors of Extreme Solar Events Using Multi-Wavelength Observations*," PI: Bennet Schwab; **Role: Postdoctoral Researcher**; Amount: $1.16M; NASA Living With a Star (LWS) Science.

Publications

Google Scholar Metrics: 102 citations | h-index: 5 | i10-index: 3 (November 9, 2026)

Peer-Reviewed Journal Articles (6 Total; 4 First Author)

J1. **Anant Telikicherla** *et al.* Advancing Solar Flare Nowcasting with Machine Learning Based Detection of Hot Onset Precursor Events. *Solar Physics*. https://link.springer.com/article/10.1007/s11207-026-02705-2 (2026).

J2. **Anant Telikicherla** *et al.* SEUSHI: Solar Extreme Ultraviolet Spectrograph and High-energy Imager: Design, Development, and Preflight Calibration. *The Astrophysical Journal*. https://iopscience.iop.org/article/10.3847/1538-4357/ae74ce/pdf (2026).

J3. **Anant Telikicherla**, Woods, T. N. & Schwab, B. D. Improving Solar Flare Nowcasting with the Hot Onset Precursor Event Technique. *The Astrophysical Journal*. https://iopscience.iop.org/article/10.3847/1538-4357/ae0705 (2025).

J4. **Anant Telikicherla**, Woods, T. N. & Schwab, B. D. Investigating the Soft X-ray Spectra of Solar Flare Onsets. *The Astrophysical Journal*. https://iopscience.iop.org/article/10.3847/1538-4357/ad37f6 (2024).

J5. Thomas N. Woods, . . . , **Anant Telikicherla** . . . *et al.* First Results for Solar Soft X-ray Irradiance Measurements from the Third Generation Miniature X-Ray Solar Spectrometer. https://iopscience.iop.org/article/10.3847/1538-4357/acef13/meta (2023).

J6. Amal Chandran and . . . and **Anant Telikicherla** . . . and others. The INSPIRESat-1: Mission, science, and engineering. *Advances in Space Research*. ISSN: 0273-1177. https://doi.org/10.1016/j.asr.2021.06.025 (2021).

Peer-Reviewed Conference Proceedings (2 Total; 2 First Author)

P1. **Anant Telikicherla** *et al. Design and development of a 3U Cubesat for In-situ Radiation Dosimetry* in *Proceedings of the 2nd National Conference on Small Satellite Technology and Applications* https://doi.org/10.1007/978-981-19-7474-8_20 (2020).

P2. **Anant Telikicherla** *et al. Development of a PS4-OP payload for technology demonstration of Small Satellite subsystems* in *Advances in Small Satellite Technologies, Proceedings of the 2nd National Conference on Small Satellite Technology and Applications-2020* https://doi.org/10.1007/978-981-19-7474-8_9 (Trivandrum, India, Dec. 2020).

Conference Proceedings (7 Total; 4 First Author)

C1. **Anant Telikicherla**. *Miniaturized Scintillation Based Detector for Characterizing Energetic Electron Precipitation* in *Proceedings of the 38th Annual AIAA/USU Small Satellite Conference, Session VIII: Frank J. Reed Student Competition, SSC24-V-03* https://digitalcommons.usu.edu/smallsat/2024/all2024/109/ (Utah, USA, Aug. 2024).

C2. **Anant Telikicherla** *et al. Design and Development of a PS4-OP Payload for Solar Spectral Irradiance Measurements and Technology Demonstration of Small-Satellite Subsystems* in *Proceedings of the 35th Annual AIAA/USU Small Satellite Conference, Swifty Session 4: Instrumentation, SSC21-S1-15* https://digitalcommons.usu.edu/smallsat/2021/all2021/115/ (Utah, USA, Aug. 2021).

C3. **Anant Telikicherla** *et al. Development of a Power-Efficient, Low Cost, and Flash FPGA based On-Board Computer for Small-Satellites* in *Proceedings of the 35th Annual AIAA/USU Small Satellite Conference, SSC21-S1-50* https://digitalcommons.usu.edu/smallsat/2021/all2021/125/ (Utah, USA, Aug. 2021).

C4. **Anant Telikicherla** *et al. Mission Concept for demonstrating Small-Spacecraft True Anomaly estimation using Millisecond X-Ray Pulsars* in *Proceedings of the 35th Annual AIAA/USU Small Satellite Conference, SSC21-VI-08* https://digitalcommons.usu.edu/smallsat/2021/all2021/178/ (Utah, USA, Aug. 2021).

C5. Amal Chandran and . . . and **Anant Telikicherla** . . . and others. *A Very Low Altitude Satellite for Equatorial Ionosphere Measurements* in *Proceedings of the 33rd Annual AIAA/USU Small Satellite Conference, Session V: Next on the Pad, SSC19-V-03* https://digitalcommons.usu.edu/smallsat/2019/all2019/90/ (Utah, USA, Aug. 2019).

C6. Sarthak, S., **Anant Telikicherla** & Gacal, G. F. *INSPIRESat-4 / ARCADE: A VLEO Mission for Atmospheric Temperature Measurements and Ionospheric Plasma Characterization* in *Proceedings of the 33rd Annual AIAA/USU Small Satellite Conference, Session VIII: Frank J. Reed Student Competition, SSC19-V-06* https://digitalcommons.usu.edu/smallsat/2019/all2019/140/ (Utah, USA, Aug. 2019).

C7. Spencer Boyajian and . . . and **Anant Telikicherla** . . . and others. *INSPIRESat-1: An Ionosphere and Solar X-ray Observing MicroSat* in *Proceedings of the 33rd Annual AIAA/USU Small Satellite Conference, Session V: Next on the Pad, SSC19-V-06* https://digitalcommons.usu.edu/smallsat/2019/all2019/93/ (Utah, USA, Aug. 2019).

Selected Conference Presentations (Talks: 5; Posters: 4)

T1. **Anant Telikicherla** *et al. Investigating Solar Flare Onsets using Multi-wavelength Spectroscopy and Imaging* American Geophysical Union Fall Meeting, SH12B: Solar Flare Energy Release, Particle Acceleration, and Transport I Oral , 9-13 December 2024.

T2. **Anant Telikicherla**, Woods, T. N. & Schwab, B. D. *Soft X-ray Spectral Analysis of Solar Flare Onsets using the Dual-zone X-ray Solar Spectrometer (DAXSS) Measurements* 54th Solar Physics Division (SPD) Meeting, American Astronomical Society, 13-18 August 2023.

Awards & Scholarships

Nov. 2025	Barth Family Endowed Graduate Fellowship, Awarded by: Laboratory for Atmospheric and Space Physics, University of Colorado Boulder
Oct. 2025	John T. Gosling Endowed Fellowship, Awarded by: Laboratory for Atmospheric and Space Physics, University of Colorado Boulder
Oct. 2024	Dr. Lisa Hardaway Graduate Assistantship, Awarded by: Ann and H.J. Smead Department of Aerospace Engineering Sciences, University of Colorado Boulder
Aug. 2024	Frank J. Redd Student Paper Competition, First Place Award, 38th Annual AIAA/USU Conference on Small Satellites (SmallSat)
Nov. 2023	Alberta Graduate Excellence Scholarship
Nov. 2023	Lalmohan Samantaraya International Graduate Award in Engineering
May. 2023	International Space Mission Mobility Scholarship
Aug. 2019	Frank J. Redd Student Paper Competition, Honarable Mention Award, 33th Annual AIAA/USU Conference on Small Satellites (SmallSat)

Technical Skills

Instrumentation:	CMOS X-ray detectors, photon-counting spectroscopy, detector calibration, scintillator detectors, Silicon Photodiodes
Data Analysis:	Solar X-ray spectroscopy and modeling, image processing, statistical analysis, basic machine learning algorithms
Hardware Design:	PCB Design, PCB assembly and soldering, basic CAD design (SolidWorks)
Programming:	Python, IDL, MATLAB, C/C++, LaTeX, Verilog

Selected Media & Research Coverage

Oct 2024	Smead Newsletter, Enhancing orbital safety with better space weather predictions
Sep 2024	AAS Nova, Watching Solar Flares Heat Up
Jul 2020	The Sounding Rocket Newsletter, The Big Adventures of Small Satellites

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