SAI DEEPAK PINAKANA

Ph.D. Student – 1st Year, Department of Earth & Environmental Sciences
Lamont-Doherty Earth Observatory, Columbia University
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EDUCATION

Columbia University in the City of New York *New York, NY*
Ph.D. Earth and Environmental Sciences *September 2025 - Present*

The University of Texas Rio Grande Valley *Edinburg, TX*
M.S. Agricultural, Environmental, and Sustainability Sciences *May 2025*
Coursework topics include Environmental Sensing, Air Pollution Science, and Biogeochemistry.

Sharda University *Uttar Pradesh, India*
Bachelor of Technology, Civil Engineering *June 2022*

EXPERIENCE

Graduate Research Assistant, Dr. Daniel M. Westervelt *September 2025 – Present*
Lamont-Doherty Earth Observatory *New York, NY*

Columbia University Department of Earth and Environmental Sciences

- Conducting analysis on the Performance of commercial Air Sensors in comparison with a Federal Equivalent Method instrument.
- Coordinated a 2-day air quality training and hands-on sensor building initiative with NYC school teachers, in collaboration with Solar One.

Graduate Research Assistant *September 2022 – May 2025*
UTRGV School of Earth Environmental, and Marine Sciences *Edinburg, TX*

- Conducted research on air quality and environmental justice issues in the Rio Grande Valley.
- Assisted in building a low-cost sensor network in the Rio Grande Valley, South Texas.
- Prepared air quality educational curriculum and delivered presentations directly to over 500 children in schools within minority communities.
- Developed a real-time GIS dashboard visualizing ground-based and satellite data using ArcGIS.
- Assisted directly in the preparation of NASA, EPA, and DOS grant proposals.
- Analyzed air quality data collected as part of multiple projects and presented through research manuscripts and oral presentations.
- Developed an air pollution curriculum and trained 8 high school students in processing and visualizing ground-based and satellite air quality data.

Graduate Teaching Assistant *September 2023 – December 2023*
UTRGV School of Earth Environmental and Marine Sciences *Edinburg, TX*

- Delivered ten 2-hour lab sessions on Historical Geology and graded lab work.
- Mean evaluation score: 4.54/5.00 (*n=17*)

Graduate Teaching Assistant *January 2023 – May 2023*

UTRGV School of Earth Environmental and Marine Sciences *Edinburg, TX*

- Delivered ten 2-hour lab sessions on Physical Geology and graded lab work.
- Mean evaluation score: 4.83/5.00 (*n=16*)

Graduate Teaching Assistant *September 2022 – December 2022*

UTRGV School of Earth Environmental and Marine Sciences *Edinburg, TX*

- Delivered ten 2-hour lab sessions on Historical Geology and graded lab work.
- Mean evaluation score: 4.95/5.00 (*n=13)*

Undergraduate Research Assistant, Dr. Satya Prakash *February 2021 – June 2022*

Sharda University *Uttar Pradesh, India*

- Conducted research on using SAR (Synthetic Aperture Radar) for various applications, including subsidence, flood, and forest mapping.
- Analyzed geospatial data using Google Earth Engine (GEE) for water quality, land surface temperature, and urban heat islands.
- Studied land subsidence in Delhi using INSAR and its relationship with groundwater levels.

PEER-REVIEWED PUBLICATIONS | *Google Scholar citations = 134; h-index = 7; i10-index = 5*

- **Pinakana, S. D**., Shah, K. B., Jaffe, D., Gonzalez, J., Temby, O., Ibarra-Mejia, G., & Raysoni, A. U. (2025). Using Low-Cost Sensors for Source Attribution and Health Assessment: An Air Quality Study in Brownsville, Texas. *Atmospheric Environment: X*, 100405. https://doi.org/10.1016/j.aeaoa.2025.100405
- Shah, K. B., **Pinakana, S. D**., Hobosyan, M., Montes, A., & Raysoni, A. U. (2025). Dataset on Indoor and Outdoor $PM_{2.5}$ Concentrations at Two Residences Using Low-Cost Sensors in the Rio Grande Valley Region of South Texas. *Data in Brief,* 60. https://doi.org/10.1016/j.dib.2025.111492
- Raysoni, A. U., **Pinakana, S. D**., Luna, A., Mendez, E., & Ibarra-Mejia, G. (2025). Characterization of BTEX species at Texas Commission on Environmental Quality (TCEQ) Continuous Ambient Monitoring Station (CAMS) sites in Houston, Texas, USA during 2018. *Sustainable Chemistry for the Environment*, 100227. https://doi.org/10.1016/j.scenv.2025.100227
- **Pinakana, S.D**., Gonzalez, J. R., & Raysoni, A. U. (2024). Personal Exposure to Black Carbon: Impact of Time-Activity Patterns and Environmental Factors on Exposure Levels. *Environmental Challenges*, 17, 101046. https://doi.org/10.1016/j.envc.2024.101046
- Shah, K.B., Kim, D., **Pinakana, S.D**., Hobosyan, M., Montes, A., Raysoni, A.U. (2024). Evaluating Indoor Air Quality in Residential Environments: A Study of $PM_{2.5}$ and CO_2 Dynamics Using Low-Cost Sensors. *Environments.* 11, 237. https://doi.org/10.3390/environments11110237
- **Pinakana, S. D.,** Raysoni, A. U., Sayeed, A., Gonzalez, J. L., Temby, O., Wladyka, D., Katarzyna Sepielak, & Gupta, P. (2024). Review of Agricultural Biomass Burning and its Impact on Air Quality in the Continental United States of America. *Environmental Advances*, 16, 100546. https://doi.org/10.1016/j.envadv.2024.100546
- **Pinakana, S. D.,** Carlos Garcia Patlan, Mendez, E., & Raysoni, A. U. (2024). A Pilot Study on Particulate Matter Concentrations from Cooking and its Effects on Indoor Air Pollution in a Mexican American Household in Mission, South Texas, USA. *Case Studies in Chemical and Environmental Engineering*, 9, 100757. https://doi.org/10.1016/j.cscee.2024.100757

- **Pinakana, S. D.,** Mendez, E., Ibrahim, I., Majumder, M. S., & Raysoni, A. U. (2023). Air Pollution in South Texas: A Short Communication of Health Risks and Implications. *Air*, 1(2), 94–103. https://doi.org/10.3390/air1020008
- **Pinakana, S. D**., Robles, E., Mendez, E., & Raysoni, A. U. (2023). Assessment of Air Pollution Levels during Sugarcane Stubble Burning Event in La Feria, South Texas, USA. *Pollutants*, 3(2), 197–219. https://doi.org/10.3390/pollutants3020015
- Raysoni, A. U., **Pinakana, S. D.,** Mendez, E., Wladyka, D., Katarzyna Sepielak, & Temby, O. (2023). A Review of Literature on the Usage of Low-Cost Sensors to Measure Particulate Matter. *Earth*, 4(1), 168–186. https://doi.org/10.3390/earth4010009
- Saini, G., & **Pinakana, S. D.** (2021). Wastewater-based epidemiology for novel Coronavirus detection in wastewater. *Global Journal of Environmental Science and Management*, 7(4), 643–658. https://doi.org/10.22034/GJESM.2021.04.10

JOURNAL ARTICLES UNDER REVIEW/REVISION

- **Pinakana, S. D**., Sepielak, K., Temby, O., Raysoni A.U., & Wladyka, D. Mobile Monitoring of Fine Particulate Matter using Low-Cost Sensors in Brownsville, Texas: A Case Study with Citizen Science Approach. *Submitted to Environmental Research Communications. (Under Revisions)*
- Shah K. B., **Pinakana, S. D**., Gonzalez, J. L., Rahman, Md. S., & Raysoni A.U. "Assessing Indoor $PM_{2.5}$ and O_3 concentrations at an Institution of Higher Learning in Texas." Submitted to *Environmental Pollution and Management*. *(Under Review)*
- Shah K. B., **Pinakana, S. D**., Gonzalez, J. L., Wladyka, D., Sepielak, K., Temby, O., Rahman, Md. S., & Raysoni A.U. "A Critical Review of Indoor and Outdoor Air Quality at Schools in the Continental United States of America (CONUS)." *Submitted to Sustainable Horizons. (Under Review)*

BOOK CHAPTERS

- Prakash, Satya, and **Pinakana, S. D.** "Water Resource Management: Geodata Analysis Through Google Earth Engine for Water Resources Management and Spatial Planning." *Addressing Environmental Challenges Through Spatial Planning,* edited by Athar Hussain, et al., IGI Global, 2022, pp. 197-218. https://www.igi-global.com/chapter/water-resource-management/290881
- Prakash, S. and **Pinakana, S.D.** (2022). Effect of COVID-19 Pandemic on the Urban Heat Island: A Multi-City Case Study in India. In: S. Prakash and A.W.M. Ng, eds., *Urban Heat Islands Reexamined*. [online] NY, USA: Nova Science Publishers. https://novapublishers.com/shop/urban-heat-islands-reexamined/

MAGAZINE ARTICLES

- **Pinakana, S. D.** (2025, June 21). Science, planning, and actionable awareness do combat air pollution | *Thermal Control Business Update* | HVAC-R Industry. Retrieved December 5, 2025, from Thermal Control Magazine website: https://www.thermalcontrolmagazine.com/air-quality/science-planning-and-actionable-awareness-do-combat-air-pollution/

CONFERENCES & PRESENTATIONS

- **Pinakana, S. D.,** Raysoni, A.U., Alqamah Sayeed & Gupta, P. "Integrating Data from Satellites and Low-Cost Sensors to Investigate Stubble Burning Effects on Air Quality in Lower Rio Grande Valley, Texas, USA." Oral presentation at the *42nd Annual Conference - American Association for Aerosol Research*, Albuquerque, NM. (October 2024).
- Raysoni, A.U., **Pinakana, S. D.,** Gonzalez, J., Ibarra-Mejia, G., & Jaffe, D. "Assessment of PM Emissions on Local Air Quality due to Specialty Minerals and Aggregate Processing Industry in a Hispanic/Latino Neighborhood in Brownsville, TX, USA." Oral presentation at the *42nd Annual Conference - American Association for Aerosol Research*, Albuquerque, NM. (October 2024).
- Shah, K. B., **Pinakana, S. D.,** & Raysoni AU. "Evaluating Air Quality Using Low-Cost Sensor and Satellite Data at Schools in a Semi-rural US-Mexico Border Region Area of South Texas, USA." Poster presentation at the *42nd Annual Conference - American Association for Aerosol Research*, Albuquerque, NM. (October 2024).
- **Pinakana, S. D.,** Pawan Gupta, Alqamah Sayeed, Juan L. Gonzalez, Owen Temby, MD Saydur Rahman, Dawid Wladyka, Katarzyna Sepielak, Amit U. Raysoni. "Impact of Sugarcane Stubble Burning Activities on Local Air Quality in the Rio Grande Valley Region of South Texas." Poster presentation at *the HAQAST Public Meeting* in Cambridge, Massachusetts. (June 2024).
- Shah, K. B., **Pinakana, S. D.,** & Raysoni AU. "Assessment of Air Pollution Levels Using Data from Low-cost Sensors and Remote Sensing Satellite in Roma Independent School District, Lower Rio Grande Valley, Texas, USA." *UTRGV College of Sciences Annual Research Conference* (April 2024).
- **Pinakana, S. D.,** Raysoni AU. "Integrating Data from Satellites and Low-Cost Sensors to Investigate Stubble Burning Effects on Air Quality in Lower Rio Grande Valley, Texas, USA." *UTRGV College of Sciences Annual Research Conference* (April 2024).
- **Pinakana, S. D.,** Raysoni, A. U. & Gupta, P. Assessing Impacts of Sugarcane Stubble Burning on Air Quality using Low-Cost Sensors and Satellite Data in the Lower Rio Grande Valley of South Texas, USA. Oral presentation at the 1*04th American Meteorological Society Annual Conference*, Baltimore, Maryland. (January 2024).
- Raysoni, A. U., **Pinakana, S. D.** Assessment of Air Quality and Empowerment of Knowledge in Schools across the Region of Rio Grande Valley. Oral presentation at the *104th American Meteorological Society Annual Conference*, Baltimore, Maryland. (January 2024).
- Kabir Bahadur Shah, **Pinakana, S. D.,** Amit U Raysoni. "Estimating the Effect of Air Pollutant Emissions from Photocopy/Printing Operation on the Indoor Air Quality." Poster presented at the *104th American Meteorological Society Annual Meeting* in Baltimore, Maryland. (January 2024).
- Roberto Muniz, **Pinakana, S. D.,** Amit U Raysoni. "Investigating the Spatio-Temporal Correlation between Atmospheric Heat Island and Pollution Island in the Lower Rio Grande Valley." Poster presented at the *104th American Meteorological Society Annual Meeting* in Baltimore, Maryland. (January 2024).
- **Pinakana, S. D.**, Raysoni AU. "Nitrogen Dioxide (NO_2) Pollution Monitoring at Port of entries along the US-Mexico border with Sentinel-5P Satellite Imagery". *UTRGV College of Sciences Annual Research Conference* (April 2023).

- Gonzalez JR, **Pinakana, S. D.,** Raysoni AU. "Measurement of personal exposure to Black Carbon using mobile measurement techniques: A case study in Lower Rio Grande Valley." Poster presented at the *UTRGV College of Sciences Annual Research Conference*. (March 2023).
- **Pinakana, S. D.,** Edward Robles, Esmeralda Mendez, Amit U. Raysoni. "Assessment of Air Pollution Levels during Sugarcane Stubble Burning Event in La Feria, South Texas, USA." Poster presented at the *103rd American Meteorological Society Annual Meeting* in Denver, Colorado. (January 2023).
- Amit U. Raysoni, **Pinakana, S. D.,** Alqamah Sayeed, Owen Temby, Dawid Wladyka, Katarzyna Sepielak, Pawan Gupta. "Using Satellite Data and Low-Cost Sensors to address Agricultural Burning Issues in the Lower Rio Grande Valley Region of South Texas, USA." The *103rd American Meteorological Society Annual Meeting* in Denver, Colorado. (January 2023).
- Attended the NCAR Earth Observing Laboratory and the University of Wyoming co-hosted the NSF-sponsored **Facilities for Atmospheric Research and Education** (FARE) users' workshop.

ACHIEVEMENTS/HONORS

- Student Travel Grant Winner for the 42nd Annual Conference - American Association for Aerosol Research:2024 ($500).
- Selected as one of the 110 Future Leader Climate Fellows across the globe by the Aspen Institute in 2024. (Aspen profile).
- 2023 GIS Day Poster Competition: School of Earth, Environmental, and Marine Sciences. UTRGV - Runner-up
- 2022 GIS Day Poster Competition: School of Earth, Environmental, and Marine Sciences. UTRGV - Winner
- Awarded special achiever of the Civil Engineering batch 2018-2022 from Sharda University.

PATENTS GRANTED/PUBLISHED

- Prakash. S., **Pinakana, S. D.** Vehicular lamp system adapted to indicate a turn and inclement weather conditions. Indian Patent No. 526575. Filed 07/2021 and granted 03/2024.
- Prakash. S., **Pinakana, S. D.** 2022. Anti-Snoring device. Indian Patent No. 525644. Filed 07/2022 and granted 03/2024.
- Prakash. S., **Pinakana, S. D.,** Kumar. A. A Smart Helmet. Indian Patent Application No. 202011057435. Filed 01/2021. Patent pending.

SKILLS

- Data collection, analysis, and manuscript preparation.
- Statistical programs: OriginPro, Microsoft Power Automate.
- Spatial analysis programs: ArcGIS Desktop, ArcGIS Pro, Google Earth Engine, SNAP, and QGIS.
- Designing programs: SketchUp, AutoCAD.
- Experience in programming languages: Python and R

EDITORIAL REVIEW

- Ad-hoc reviewer for the academic journal – Indoor Air (**1**).

GUEST LECTURES

- Air quality and sources of air pollution in Rio Grande Valley
    - Guest Lecturer for ‘Introduction to Environmental Sciences’ at UTRGV on Oct 03, 2024
    - Guest Lecturer for ‘Introduction to Environmental Sciences’ at UTRGV on Feb 27, 2025