

Pratyush Tripathy

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Profile links: [UCSB](#) [g](#)



RESEARCH INTEREST: remote sensing, AI, natural disasters, impact evaluation, causal analysis

EDUCATION

- PhD in Geography 09/2022-date
University of California, Santa Barbara.
- Integrated Master of Technology in Geoinformatics 08/2013-05/2018
Central University of Jharkhand, India.

WORK EXPERIENCE

- Balyasny Asset Management, New York City
- Summer Associate, Geospatial Data Scientist 06/2026-08/2026
- Indian Institute for Human Settlements, Bengaluru, India.
- External Consultant / Advisor 09/2022-03/2023
- Senior Associate - Geospatial Lab 04/2022-08/2022
- Associate - Geospatial Lab 04/2020-03/2022
- Assistant - Geospatial Lab 05/2018-03/2020

GRANTS/ FELLOWSHIPS

- Goodchild Fellowship in GIS (**\$3,400**). *Hidden Pitfalls in Geospatial AI*. 04/2026
- NASA FINESST (**\$150,000**). *High-Quality Flood Mapping Using SAR Sensors: Evaluating Uncertainty in Existing Global Flood Exposure Estimates*. 2025-2028
- UCSB Department of Geography Summer Research Fellowship (**\$8130**). 06/2024
- Schmidt Family Foundation Research Accelerator award (**\$8000**). *Mapping Smallholder Agriculture Field Boundaries in the Indo-Gangetic Plain, India*. 10/2023
- Benioff Applied Environmental Science Summer Fellowship (**\$6000**). *Using Satellites and AI to Map Smallholder Agriculture Field Boundaries With Limited Training Data*. 04/2023
- GEO - Microsoft Planetary Computer (**\$120,000**). *India Flood Monitoring and Impact Assessment Portal (IFMIAP)*. Funded through Microsoft AI for Earth grant. 2021
PI: Krishnachandran Balakrishnan. Co-Is: Teja Malladi, **Pratyush Tripathy**.

OPEN-SOURCE SOFTWARE DEVELOPMENT

- Global Flood Mapper - Google Earth Engine application that uses Sentinel-1 SAR data for flood mapping. This is a simple graphical user interface that allows flood mapping without getting into technical intricacies of processing large amounts of data. [link 1](#), [link 2](#)
- pyrsgis - A Python package to read, process and export GeoTIFFs. pyrsgis is available on both PyPI and Anaconda, and has been downloaded over [210k times](#). [link](#)

- COINS (COntinuity IN Street Networks) - A fully-automated Python tool to generate street hierarchy from raw OSM street network data. COINS is now integrated into the [MomePy](#) Python package and has become roughly ten times faster than the originally published version. [link](#)
- AutoFloods - A Python package for automated flood mapping from SAR sensors. [link](#)
- LandSTAC - A Python project that connects to the USGS LandsatLook STAC API to search and download data available in USGS STAC API. This package is currently in the testing phase. [link](#)

JOURNAL ARTICLES

1. Anaya, J. A., Montero, D., **Tripathy, P.**, Schroeder, W., Hantson, S., Bastarrika, A., & Mahecha, M. D. (2026). Assessing fire-exposed vegetation in the Orinoco Basin using Sentinel-2 and deep learning. *Sustainable Geosciences: People, Planet and Prosperity*, 100031. <https://doi.org/10.1016/j.susgeo.2026.100031>
2. **Tripathy, P.**, Baylis, K., Wu, K., Watson, J., & Jiang, R. (2026). Zero-shot inference strategies for smallholder (< 0.1 ha) agriculture field delineation with the Segment Anything foundation model. *Science of Remote Sensing*, 100425. <https://doi.org/10.1016/j.srs.2026.100425>
3. Rathore, J., Kumari, S., **Tripathy, P.**, Mahto, S. S., & Lal, P. (2025). 2024 Brazil floods: Mapping the extent and impacts in Eastern Rio Grande do Sul using geospatial techniques. *Natural Hazards Research*. <https://doi.org/10.1016/j.nhres.2025.03.011>
4. Diksha, Kumar, A. & **Tripathy, P.** (2023). Geographically Weighted Logistic Regression to measure the role of Intra-Urban Drivers for urban growth modelling in Kathmandu, Central Himalayas. *Environmental Monitoring and Assessment*, 195(5), 627. <https://doi.org/10.1007/s10661-023-11164-2>
5. Guan, C., Gómez, J. A., **Tripathy, P.**, Duque, J. C., Passos, S., Cheng, T & Keith, M. (2023). Evaluating the impact of water protection policy on urban growth: A case study of Jiaxing. *Environment and Planning B: Urban Analytics and City Science*, 23998083231163182. <https://doi.org/10.1177/23998083231163182>
6. **Tripathy, P.** & Malladi, T. (2022). Global Flood Mapper: A novel Google Earth Engine application for rapid flood mapping using Sentinel-1 SAR. *Natural Hazards*. <https://doi.org/10.1007/s11069-022-05428-2>
7. **Tripathy, P.**, Balakrishnan, K., de Franchis, C., & Kumar, A. (2022). Generating megacity-scale building height maps without DGNSS surveyed GCPs: An open-source approach. *Environment and Planning B: Urban Analytics and City Science*. <https://doi.org/10.1177/23998083221084990>
8. Kumar, A., Manisha, M., Lal, P., Prasad, A., **Tripathy, P.**, & Saikia, P. (2022). Analysing Urban Damage and Surface Deformation based hazard-risk in Kathmandu City occurred during Nepal Earthquake (2015) using SAR Interferometry. *Advances in Space Research*. <https://doi.org/10.1016/j.asr.2022.02.003>
9. Saharan, U. S., Kumar, R., **Tripathy, P.**, Sateesh, M., Garg, J., Sharma, S. K., & Mandal, T. K. (2021). Drivers of air pollution variability during second wave of COVID-19 in Delhi, India. *Urban Climate*, 101059. <https://doi.org/10.1016/j.uclim.2021.101059>
10. Gómez, J. A., Guan, C., **Tripathy, P.**, Duque, J. C., Passos, S., Keith, M., & Liu, J. (2021). Analyzing the Spatiotemporal Uncertainty in Urbanization Predictions. *Remote Sensing*, 13(3), 512. <https://doi.org/10.3390/rs13030512>

11. **Tripathy, P.**, Rao, P., Balakrishnan, K., & Malladi, T. (2021). An open-source tool to extract natural continuity and hierarchy of urban street networks. *Environment and Planning B: Urban Analytics and City Science*, 48(8), 2188-2205. <http://dx.doi.org/10.1177/2399808320967680>
12. **Tripathy, P.**, & Kumar, A. (2019). Monitoring and modelling spatio-temporal urban growth of Delhi using Cellular Automata and geoinformatics. *Cities*, 90, 52-63. <https://doi.org/10.1016/j.cities.2019.01.021>

PREPRINTS

1. **Tripathy, P.**, Upadhyay, S., Alegbeleye, O. M., Senkardesler, E., Pingali, D., Goddard, E., Thaker, J., Leiserowitz, A., & Marlon, J. R. (2026). National-scale mapping locates the mismatch between perceived and assessed flood risk in India. EarthArXiv. <https://doi.org/10.31223/X5WZ38>.
2. Agrawal, A., & **Tripathy, P.** (2026). Global Flood Mapper v2: Open-access flood mapping and exposure assessment with Sentinel-1 SAR. EarthArXiv. <https://doi.org/10.31223/X54482>.
3. **Tripathy, P.** & Balakrishnan, K. (2021). Global Built-up and Population Datasets: Which ones should you use for India? Preprint available on [arXiv:2108.08304](https://arxiv.org/abs/2108.08304)
4. Kumar, P. K., Balakrishnan, K. & **Tripathy, P.** (2021). A CNN based method for sub-pixel urban land cover mapping using Landsat 5 TM and Resourcesat 1 - LISS IV imagery. Preprint available on [arXiv:2112.08841](https://arxiv.org/abs/2112.08841)

BOOKS / BOOK CHAPTERS

1. **Tripathy, P.**, Agrawal, A., & Koul, S. (2025). Cloud-based flood mapping with Sentinel-1 SAR on Google Earth Engine: Insights from the global flood mapper. In *Data-Driven Earth Observation for Disaster Management: From Theory to Practical Applications* (pp. 609-622). Elsevier. <https://doi.org/10.1016/B978-0-443-33803-8.00045-7>
2. Perikamana, K. K., Balakrishnan, K., & **Tripathy, P.** (2024). Deep learning approach for monitoring urban land cover changes. In *Earth Observation in Urban Monitoring* (pp. 171-196). Elsevier. <https://doi.org/10.1016/B978-0-323-99164-3.00003-3>
3. Malladi, T., Mayavel, D., Chatterji, N., & **Tripathy, P.** (2018). India Higher Education Atlas (6 volumes). (A. Revi, Ed.) (2018th ed.). Bengaluru, Karnataka: Indian Institute for Human Settlements. <https://doi.org/10.24943/9789387315556>

ACADEMIC CONFERENCES

- **Tripathy, P.** & Agrawal, A. (2025). Global Flood Mapper v2: An Open-source Browser-based Platform for Flood Mapping and Impact Assessment Using Sentinel-1 SAR, *AGU Annual Meeting 2025*, 15–19 Dec 2025, <https://agu.confex.com/agu/agu25/meetingapp.cgi/Paper/1979454>
- **Tripathy, P.** (2025). Flood mapping with optical and microwave satellite data: from indices to machine learning, *NeurIPS 2025*, 07 Dec 2025, <https://neurips.cc/virtual/2025/loc/san-diego/127004>
- **Tripathy, P.**, Baylis, K., Heilmayr, R., Latka, C., & Ashraf, R. (2024). Deep Learning for Predicting Counterfactual Deforestation in Protected Areas in the Amazon, *TWEEDS 2025*, 25-26 Apr 2025, <https://tweeds.io/program/>
- **Tripathy, P.**, Baylis, K., Heilmayr, R., Latka, C., & Ashraf, R. (2024). Neural Networks for Predicting Deforestation in the Amazon for Policy Evaluation, *AGU Annual Meeting 2024*, 9–13 Dec 2024, <https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1694600>

- **Tripathy, P., & Balakrishnan, K. (2024).** Gridded Population Data for India: Accuracy Assessment and a New Benchmark, *AGU Annual Meeting 2024*, 9–13 Dec 2024, <https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1708744>
- **Tripathy, P., & Baylis K. (2024).** Leveraging Segment Anything Model for Agriculture Field Boundary Detection in the Indo-Gangetic Plain, India, *AAG 2024*, 16–20 Apr 2024, <https://aag.secure-platform.com/aag2024/solicitations/57/sessiongallery/7219/application/31985>
- **Tripathy, P., Baylis K., Wu, K., Watson, J. & Jiang, R. (2023).** Mapping Smallholder Agriculture Field Boundaries From Satellite Images Without Training Labels, *AGU Annual Meeting 2023*, 11–15 Dec 2023, <https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1324373>
- **Tripathy, P. & Malladi, T. (2021).** Global Flood Mapper: Democratising open EO resources for flood mapping, *EGU General Assembly 2021*, online, 19–30 Apr 2021, EGU21-16194, <https://doi.org/10.5194/egusphere-egu21-16194>
- **Tripathy, P., Balakrishnan, K., de Franchis, C., & Kumar, A. (2019).** An open-source method to extract building height from Cartosat-1 satellite stereo images. Presented at the *Living Planet Symposium*, May 13-17, 2019. European Space Agency, Milan, Italy.
- **Tripathy, P., Jayshankar, L. N., Isaiah, B., & Malladi, T. (2019).** Assessing multi-temporal surface water variability of Kodagu, India using geospatial techniques. Poster presented at the *International Symposium on Disaster Resilience and Sustainable Development*, March 7-8, 2019. Asian Institute of Technology, Bangkok, Thailand.

PROFESSIONAL/ INVITED TALKS

- Spatial Data Science for Urban Applications. Guest lecture for the *Planning Global Cities* course at NYU Wagner, October 10, 2024. [link](#)
- Analysing urban areas using remote sensing & GIS. *Five-Day National Online Training Program on “Sustainable Horizons: Methodological Innovations in Architecture and Urbanism aligned with SDGs”*, Department of Architecture, Planning and Design, in Collaboration (APD), IIT(BHU) Varanasi, November 23, 2023.
- Revolutionizing Flood Mapping with Global Flood Mapper: A User-Friendly Solution for Disaster Response and Beyond. *Lunch & Learn, UCSB Graduate Division*, April 21, 2023. [link](#)
- Democratizing Open EO Resources to Save Lives During Floods. *Spatial Lightning Talks 2023, UCSB Center for Spatial Studies*, March 16, 2023. [link](#)
- Turning to Skies to Save Lives On Ground. *Grad Slam 2023, UCSB*, February 02, 2023. [link](#)

CONFERENCE LEADERSHIP AND ACADEMIC JUDGING

- **Session Co-chair** for “Remote Sensing and Machine Learning for Flood Mapping and Impact Assessment” at the *American Geophysical Union 2024, held in Washington, D.C., December 9-13, 2024*. [link](#)
- **Session Co-chair** for “Land Change and Development Pathways” at the *American Association of Geographers 2023 Annual Meeting*, held in Honolulu, Hawaii, April 16-20, 2023. [link](#)
- **Served as a Judge** for the Outstanding Student Presentation Awards (OSPA) at the American Geophysical Union 2023, held in San Francisco, CA, December 11-15, 2023.

JOURNAL REVIEWS

[Scientific Reports](#)

[Environment and Planning B](#)

[SN Social Sciences](#)

[Applied Geomatics](#)

[Acta Geophysica](#)

[Remote Sensing of Environment](#)

[Sustainable Cities and Society](#)

[Environmental Monitoring and Assessment](#)

[Journal of the Indian Society of Remote Sensing](#)

[Geo-spatial Information Science](#)

[ISPRS Journal of Photo. and Remote Sensing](#)

[Natural Hazards](#)

[Heliyon](#)

[Urbanisation](#)

[Transactions in GIS](#)

[Discover Cities](#)

OP-EDs

- Tripathy, P. (2021, May 12). Covid-19 in maps: Public hospitals in most Bihar districts lack ICU support as second wave hits. Scroll.in [link](#)
- Tripathy, P. & Malladi, T. (2019, October 10). Turning to the skies for search and rescue during floods. Mongabay. [link](#)

BLOGS

- Reduce GeoTIFF Disk Space Usage with Python. Towards Data Science. [link](#)
- Python and GDAL Installation Automated for Windows. Towards Data Science. [link](#)
- Is CNN equally shiny on mid-resolution satellite data? Towards Data Science. [link](#)
- Neural network for satellite data classification using Tensorflow+Python. Towards Data Science. [link](#)

ACADEMIC THESES

- PhD Dissertation 2017-2018
Title: *Impacts of floods on poverty in India: An empirical investigation using remote sensing, machine learning and econometrics.*
- Master of Technology Thesis 2017-2018
Title: *Delineation of urban neighbourhoods based on similarity analysis of built environment using Geoinformatics: case study of Bengaluru, India.*
- Bachelor of Technology Project 2017
Title: *Markov Chain and Cellular Automata based Urban Growth Modelling of Delhi.*

TEACHING

- **Courses taught at UC Santa Barbara**
GEOG W8 *Global Warming.* Summer 2025
GEOG 115C *Remote Sensing of the Environment 3.* Spring 2025
GEOG 115B *Remote Sensing of the Environment 2.* Winter 2025
GEOG 5 *People, Place, and Environment.* Fall 2023
GEOG 172 *Intermediate Geographical Data Analysis.* Fall 2022
INT 93P/R *Summer Research Mentorship Program.* Summer 2023, 2024, 2025
- **Courses taught at IIHS, Bengaluru**
UFP SKILL LAB *Working with spatial data. Urban Fellowship Program.* 2018, 2019, 2020.
UFP ELECTIVES *Advanced GIS. Urban Fellowship Program.* 2018, 2019, 2020.
- YouTube channel
GIS and remote sensing tutorials. 1100+ subscribers, 100k+ views. [link](#)

MENTORING

- **Undergraduate students at UC Santa Barbara**

3 students on the project “Agriculture field boundary delineation using Segment Anything foundation model and SkySat satellite data in smallholder farms”. 2022-date

▪ **Past Interns and Consultants at IIHS, Bengaluru**

1 student from IIT Delhi on “Predicting Demographics from Satellite Imagery.”	2020-2021
1 Consultant on “Spatial Inequalities and Water” theme, PEAK-Urban project	2019-2021
1 intern on the project “Automated Pipeline for India Census 2011 data clean-up”	2021
2 interns from KRSRAC on “Flood mapping using Sentinel-1 SAR data”	2018
1 intern from CUJ, Ranchi on “Landslide mapping using SAR Interferometry”	2018

INTERNSHIPS

- M.Tech Project Intern. IIHS, Bengaluru 08/2017-03/2018
- Summer Intern - SAR Interferometry for surface deformation. IIT Bombay 06/2017-07/2017
- Summer Intern - Open defecation status mapping. NIT Patna 06/2016-07/2016
- Summer Intern - City GIS mapping. AGISAC, Shimla 05/2015-06/2015

COURSES / WORKSHOPS ATTENDED

- IEEE GRSS MicrowAve MonItoring of WATer with Applications (MAMI WATA) workshop. Organised at Sapienza University of Rome from 18 to 21 Nov, 2025.
- NSF I-GUIDE Summer School 2025. UCAR Campus, Boulder, Colorado, 4-8 August, 2025.
- Open GeoScience Hackathon. Organised by LinkedEarth at University of Southern California Information Sciences Institute, Marina Del Rey, 28-30 May, 2025.
- IEEE GRSS IFT-MIRS TC Joint Summer School. Organised by IEEE Geoscience and Remote Sensing Society at Caltech from 4-5 October 2024.
- Geospatial Cyberinfrastructure Workshop: Building High-Performance, Ethical, and Secured Geospatial Software. Organised as part of NSF ACCESS during AAG from 16 to 17 April 2024.
- IEEE GRSS-USC MHI 2023 Remote Sensing Summer School. Organised by IEEE Geoscience and Remote Sensing Society and University of Southern California from 13 to 15 July 2023.
- Oxford Summer School in Economic Networks. Organised by Oxford Martin School, University of Oxford from 21 to 25 June 2021.
- Application of satellite remote sensing for air quality and health research. Organised by Universities Space Research Associations (USRA), NASA and Public Health Foundation of India (PHFI). Hosted at PHFI, Gurugram from 11 to 13 February 2020.
- Urban Disaster Risk Reduction using Geospatial Technologies. Organised by the Ministry of Human Resource Development, Government of India. Hosted at JNTUH College of Engineering, Hyderabad from 12 to 22 December 2018.

OTHER GRANTS/ AWARDS

- **\$2500** travel grant to attend AGU 2025 by Facilitating Reproducible and Open GeoScience (FROGS), 15-19 Dec, 2025.
- **\$750** travel grant to attend the IEEE-GRSS MAMI-WATA workshop in Rome, 18-21 Nov, 2025. [link](#)
- **\$2000** travel grant to attend the Open GeoScience Hackathon organized by University of Southern California, 28-30 May, 2025. [link](#)
- **\$500** travel grant by IEEE Geoscience and Remote sensing Society LA Chapter to attend Summer School at Caltech, 4-5 October, 2024. [link](#)
- **\$600** NSF travel scholarship to attend the Geospatial Cyberinfrastructure Workshop at 2024 AAG Annual Meeting in Honolulu, 16-17 April, 2024. [link](#)
- **\$600** Dangermond Travel Scholarship by the Department of Geography, UC Santa Barbara to attend the AGU Annual meeting in San Francisco, 11-15 December, 2023.
- **\$500** Graduate Student Association Travel Grant, UC Santa Barbara to attend the AGU Annual meeting in San Francisco, 11-15 December, 2023.

COMMUNITY SERVICE

- Space Dinner Volunteer at The Transition House, Santa Barbara. Monthly on 30th. 2023-date [link](#)
 - Founded the Graduate Application Materials Assistance (GAMA) program in the Department of Geography, UCSB to help prospective PhD students with their PhD application. 2023-date [link](#)
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