

Subhasis Ghosh

Office Address

2194A Haley Center, Auburn University, Auburn, AL, USA, 36849

Contact: subhasis@auburn.edu, info@subhasisghosh.com

Linked In: www.linkedin.com/in/subhasis **Google Scholar:** <https://bit.ly/2Sser1M>







www.subhasisghosh.com





License and Key Experiences

FAA Certified Remote Pilot (Drone/UAV-Small), Remote Sensing & GIS: 8+ Years, GIS Programming: 2+ Years

Education

-  **Doctor of Philosophy (Ph.D.) in Earth System Science** Auburn, AL, USA
Auburn University Expected Graduation: Summer 2025
Recipient of the prestigious NASA-IDS fellowship, and USGS Climate Adaptation Scientists of Tomorrow grant.
Advisor: [Dr. Chandana Mitra](#)
-  **Master of Science (M.S.) in Geography and Environmental Studies** Auburn, AL, USA
Auburn University 2023
(Please note that my degree was conferred with the title MS in Geography. However, the degree has since been renamed by the issuing institution to MS in Geography and Environmental Studies with no change in curriculum)
Advisor: [Dr. Chandana Mitra](#)
Capstone Project: Revolutionizing Urban Studies: Harnessing Deep Learning to Extend Long-Term Normalized Difference Urban Index (NDUI) Data Time Series.
-  **Post-Graduate Diploma in Urban Planning and Development** New Delhi, India
Indira Gandhi National Open University 2020
Advisor: [Prof. P. V. K. Sasidhar](#)
-  **Post-Graduate Diploma in Geoinformatics** Kolkata, India
Maulana Abul Kalam Azad University of Technology (Formerly known as WBUT) 2019
Advisor: [Dr. Asim Ratan Ghosh](#)
Capstone Project: Identification of an Emergency Ambulance Route in Bolpur-Santiniketan, India to address mobility crisis of patients during major festival seasons- A GIS-based approach.
-  **Master of Arts (M.A.) in Geography** Santiniketan, WB, India
Visva-Bharati University 2018
Specialization: Applied Geomorphology/Terrain Evaluation
Advisor(s): [Dr. Bhairu Lal Yadav](#), [Prof. Vibhash Chandra Jha](#).
Thesis: Gully Erosion and its Impact on Regional Development - A Case Study of Bolpur-Sriniketan Lateritic Patch
-  **Bachelor of Arts (B.A. Hons.) in Geography** Santiniketan, WB, India
Visva-Bharati University 2016

Professional Certifications

-  **Graduate Certificate in Geographic Information System Science** Auburn, AL, USA
Auburn University 2024
-  **Certificate in GIS and Thematic Cartography** Kolkata, India
National Atlas and Thematic Mapping Organization, Govt. of India 2018

Department of Geosciences, Auburn University, USA. August 2021 to Present

Graduate Teaching Assistant (GTA)

Date Started and Finished: 1st January 2024 to Present

Courses Taught: Advanced GIS, Drones, and Geospatial Applications.

Graduate Research Assistant (GRA)

Date Started and Finished: 01st October 2023 to Present

Funding Agency: United States Geological Survey (USGS)

Project Name: 'Earth as Art' Interactive Global Museum

- Converted complex remote sensing images into simple, artistic, and attractive photographs similar to 'Earth As Art' images of USGS. This involved applying digital image processing techniques to enhance clarity and highlight key features relevant to Earth system science.
- Collaborated with a multidisciplinary team to create an engaging virtual reality (VR) based interactive learning experience, ensuring alignment with educational objectives and target audience engagement to promote interest in Earth science and STEM disciplines.

Graduate Research Assistant (GRA)

Date Started and Finished: 16th August 2021 to Present

Funding Agency: National Aeronautics and Space Administration (NASA)

Project Name: Investigation of Global Urbanization Footprints and the Urban Rainfall Effect Climatologies.

- Worked with a focus on urbanization and urban agglomerations to identify research gaps in the field and utilized Remote Sensing, GIS, and cloud computing techniques for microscale and mesoscale weather/climate impact assessments.
- Developed an ML-based innovative technique to extend the lifespan of DMSP nighttime data and brought the high-resolution Normalized Difference Urban Index (NDUI) dataset up to date.
- Developed and published original research manuscripts in reputable scientific journals; communicated research and science at national and international conferences.
- Received periodical training on Responsible Conduct of Research for Physical Science.

West Bengal State Council of Science and Technology, India. March 2021 to July 2021

Junior Research Fellow (JRF) / Project Scientist

Funding Agency: National Remote Sensing Centre (NRSC), Indian Space Research Organization (ISRO), Department of Space, Government of India.

Project Name: Space-Based Information Support for Decentralized Planning (SIS-DP)- Update.

- Responsible for mapping land use & land cover changes through digital image interpretation using ERDAS Imagine and ArcGIS, and updating the Indian national resources database.
- Organized and attended scientific training programs and meetings.

Prayukti Systems Private Limited, India. September 2019 to October 2019

GIS Analyst

Project Name & Funding Agency: 'Utility-Facility mapping, geo-database creation, and verification of road construction status sanctioned under Prime Minister's village-road construction scheme (*Pradhan Mantri Gram Sadak Yojana - PMGSY*) scheme for Purulia District, West Bengal, India'; Funded by Government of India.

- Posted as the Lead GIS consultant to the client site.

- Led a team of GIS analysts to complete all the given tasks meeting all the deadlines.

Geospatial Software Skills

GIS Image Processing and Mapping: *ArcGIS Pro, ERDAS Imagine, QGIS, Google Earth Engine, ArcGIS StoryMaps.*

Specialized Modelling Software: *Weather Research & Forecasting (WRF)*

Unmanned Aerial Vehicle (UAV) data collection and Processing: *Drone2Map, Pix4Dmapper*

Statistical Environments: *SPSS, R Studio*

Notable Courses Taken

Natural Hazard Risk and Resilience, Climatology, Geographic Information System, Earth System Science & Global Change, Urban Geography and Sustainability, Drones and Geospatial Applications, Earth Systems Observation & Analysis, Advanced GIS, GIS Programming, Human-Environment Interaction, Land and Climate Interactions, Quantitative Methods & Spatial Analysis, Geocommunication.

Programming Language Skills

Python, R, Java.....Working knowledge.

Peer-Reviewed Publications

Please visit [Google Scholar](https://scholar.google.com/) page for citation matrices.

1. Das, R. D., Bandopadhyay, S., **Ghosh, S.**, Das, M., Chowdhury, M., Cotrina-Sanchez, A., Kumar, C., & Mitra, C. (2023). Have COVID lockdowns really improved global air quality? –Hierarchical observations from the perspective of urban agglomerations using atmospheric reanalysis data. *Physics and Chemistry of the Earth, Parts A/B/C*, 132, 103452. <https://doi.org/10.1016/j.pce.2023.103452>
2. Singh, M., **Ghosh, S.**, Kamath, H., Vaisakh, S. B., Mitra, C., Saxena, S., Rao, S., Shepherd, M., & Niyogi, D. (2023). Long-term normalized difference urban index (NDUI) data time series for urban studies. Manuscript under peer review. Pre-print available at arXiv: <https://doi.org/10.48550/arXiv.2306.02794>.
3. Bandopadhyay, S., Das, B., Sánchez, A. C., Banerjee, S. P., Banerjee, B. P., & **Ghosh, S.** (2023). Canopy Scale High-Resolution Forest Biophysical Parameter (LAI, fAPAR, and fCover) Retrieval Through Machine Learning and Cloud Computation Approach. In IEEE (Ed.), 2023 International Conference on Machine Intelligence for GeoAnalytics and Remote Sensing (MIGARS) (pp. 1-4). Hyderabad, India. doi: <https://doi.org/10.1109/MIGARS57353.2023.10064558>
4. Cotrina Sánchez, A., Rojas Briceño, N. B., Bandopadhyay, S., **Ghosh, S.**, Torres Guzmán, C., Oliva, M., Guzman, B. K., & Salas López, R. (2021). Biogeographic Distribution of *Cedrela* spp. Genus in Peru Using MaxEnt Modeling: A Conservation and Restoration Approach. *Diversity*, 13(6), 261. <https://doi.org/10.3390/d13060261>
5. **Ghosh, S.**, Bandopadhyay, S., & Sánchez, D. A. Cotrina. (2021). Long-Term Sensitivity Analysis of Palmer Drought Severity Index (PDSI) through Uncertainty and Error Estimation from Plant Productivity and Biophysical Parameters. *Environ. Sci. Proc.*, 3(1), 57. <https://doi.org/10.3390/IECF2020-07956>
6. Jha, V. C., & **Ghosh, S.** (2020). Environmental Risk Assessment: A Geomorphic Investigation over the Bolpur-Santiniketan-Illambazar Lateritic Patch of Birbhum District, West Bengal, India. *National Geographical Journal of India*, 66(2), 94-110. <https://doi.org/10.48008/ngji.1733>

1. **Subhasis Ghosh**, Chandana Mitra (2023), 'Need for Investigating the Impacts of Urbanization on Micro-Hydroclimatology: Urban Agglomerations vs Individual Cities', Poster presented at *ICUC 11: 11th International Conference on Urban Climate*, 28th Aug – 1st Sept., 2023, UNSW, Sydney, Australia.
2. **Subhasis Ghosh**, Chandana Mitra (2023), 'Urban Climate Archipelagoes and their impacts on global climatology: An Emerging Matter of Concern', Paper presented at *AAG Annual Meeting 2023*, 23rd – 27nd March 2023, Denver, CO, USA.
3. Subhajit Bandopadhyay, Barnali Das, Alexander Cotrina Sánchez, Sankar Prasad Banerjee, Bikram P. Banerjee and **Subhasis Ghosh** (2023), 'Canopy Scale High-Resolution Forest Biophysical Parameter (LAI, fAPAR, and fCover) Retrieval Through Machine Learning and Cloud Computation Approach', Presented at *IEEE MIGARS2023*, 27th 29th January 2023, Hyderabad, India.
4. **Subhasis Ghosh**, Chandana Mitra, Sukanya Dasgupta (2022), 'Long Term Ozone Health Analysis of Atlanta Urban Agglomeration of United States Using Machine Learning and Cloud Computing Techniques', Presented at *Annual Meeting of the SouthEastern Division of American Association of Geographers (SEDAAG) 2022*, 19th – 22nd November 2022, Atlanta, GA, USA.
5. **Subhasis Ghosh**, Subhajit Bandopadhyay, Dany A. Cotrina Sánchez (2020), 'Long-term Sensitivity Analysis of Palmer Drought Severity Index (PDSI) Through Uncertainty and Error Estimation from Plant Productivity and Biophysical Parameters', Presented at *The 1st International Electronic Conference on Forest*, MDPI, 15th-30th November 2020, View at: <https://sciforum.net/paper/view/7956>
6. **Subhasis Ghosh** and A.R Ghosh (2019), 'Identification of an Emergency Ambulance Route for Festival Seasons of Bolpur-Santiniketan- A GIS Based Approach', Oral Presentation at *4th West Bengal Science & Technology Congress (Southern Region) 2019*, Haringhata, West Bengal, India, 23rd-24th December 2019, Published at Abstract Volume, p- 120. View at: <https://tinyurl.com/2srf92m2>
7. **Subhasis Ghosh** and VC Jha (2018), 'Impact of Lateritic Terrain on Regional Development- A Case Study of Bolpur-Santiniketan Lateritic Patch, Birbhum District, West Bengal', Oral Presentation at *3rd West Bengal Science & Technology Congress (Southern Region) 2018*, Kolkata, West Bengal, India, 18th-19th December 2018, Published at Abstract Volume, p- 117. View at: <https://tinyurl.com/2uv782m5>

Technical Training/ Workshops

- Weather Research & Forecasting (WRF) Tutorial at National Center for Atmospheric Research (NCAR), Boulder, CO, USA (17th July – 21st July 2023).
- Responsible Conduct of Research for Physical Science (Record ID 47998085), CITI Program, 3rd April 2022 (Valid till 2nd April 2027).
- Summer School (e-School) on Climate Science & Policy, Indian Institute of Technology (IIT), Bombay, India (17 Aug-28 Aug, 2020).
- Summer School (e-School) on Urban Sustainability, DLGS, Germany (7th Sept – 9th Sept, 2020).
- NASA Applied Remote Sensing Training (ARSET) Program on Understanding Phenology with Remote Sensing (2020).
- NASA Applied Remote Sensing Training (ARSET) Program on Using Earth Observations to Monitor Water Budgets for River Basin Management (2020).
- Six-month certificate course on Computer Applications, from National Institute of Computer Education, India (2010)
- 80-hours training workshop in English Communication and Basic Corporate Etiquette, jointly organized by TATA Consultancy Services & Visva-Bharati University. (2015)

Editorial and Peer Review Services

- Peer Reviewer - *Heliyon*, Cell Press. ([visit journal](#))
- Peer Reviewer – *Results in Earth Sciences*, Elsevier. ([visit journal](#))
- Peer Reviewer - *Advances in Space Research*, Elsevier. ([visit journal](#))
- Peer Reviewer – *Environmental Monitoring and Assessment*, Springer Nature. ([visit journal](#))
- Reviewer- Undergraduate Research Fellowship-2024, College of Sciences and Mathematics, Auburn University.
- Peer Reviewer - The 7th International Conference on Computer Science and Application Engineering, Oct 17th-19th, 2023, Wuhan, China.
- Guest Editorial Assistant (Chief Editor's nominee) of the *Indian Cartographer* - Journal of the Indian National Cartographic Association (INCA), India, ISSN 0972-8392 (2020).
- Editorial team member (technical) of the *Indian Cartographer* - Journal of the Indian National Cartographic Association (INCA), India, ISSN 0972-8392, Vol-36, Special Issue - Cartography and Climate Change (2016).

Grants

- Climate Adaptation Scientists of Tomorrow (CAST) research mini-grant, United States Geological Survey (USGS), USA (2023) - \$2000
- Graduate Student Council (GSC) Travel Fellowship, Auburn University, USA (2023) - \$500
- Geosciences Advisory Board (GAB) Travel Grant, Auburn University, USA (2023) - \$250
- Geosciences Advisory Board (GAB) Travel Grant, Auburn University, USA (2022) - \$250
- NASA IDS (Grant No. NNH19ZDA001N-IDS, through PI-Dr. Marshall Shepherd, CO-PI- Dr. Chandana Mitra), NASA, USA (2021-2023) - \$187,993
- Swami Vivekananda Merit-Cum-Means Scholarship, Government of West Bengal, India (2016-2018) – INR 48,000

Awards and Honors

- AU Involvement Award for 'Excellence in Communications and Marketing in recognition of the innovative publicity and communication efforts for the Indian Students Association (ISA) in Auburn University, AL, USA (2023)
- Awarded full tuition fee waiver by Visva-Bharati University, India (2013-2015)
- All India Rank-2 in Visva-Bharati Common Admission Test (VBCAT) to study B.A.(Honours) in Geography (2013)
- All India Rank-4 in the entrance examination of Post-Graduate Diploma (Geoinformatics) program organized by the Dept. of Higher Education, Science & Technology and Biotechnology, Govt. of West Bengal, India (2018)
- Certificate of Appreciation received for outstanding contribution to welfare project of environmental protection and awareness for the people of Bolpur, India, from 50 Bengal Bn., India (2018)
- Delegation team member of the Department of Science & Technology and Biotechnology, Government of West Bengal, India to attend Esri India User Conference (2019)

Leadership Roles

- Director of Outreach and Engagement - Regional Development and Planning specialty group of the American Association of Geographers (AAG). (2024 to present)
- Senator - Auburn University Graduate Student Council (2023-2024)
- Vice President of Special Projects, Indian Students Association, Auburn University, USA (2022-2023)

- Student Representative - Regional Development and Planning specialty group of the American Association of Geographers (AAG). (2023-2024)
- Secretary of Geography Student Organization at Auburn University, AL (2022-2023)
- Media and Publicity Officer of Indian Student Association, Auburn University, USA (2021-2022)

Media Spotlight

- Auburn doctoral student challenges perceptions of COVID-lockdowns' impact on air quality with international team of researchers through NASA project – COSAM Today, Oct 24, 2023 ([link](#)).

Community Services, Extra-Curriculars, and Outreach Activities

Service to School and Academia

- Events Committee Member of Auburn University Graduate School (2023)
- Paper session organizer on 'Urban, Climate, and Sustainability' at AAG (American Association of Geographers) Annual Meeting, Denver, CO, USA. (2023)
- Judge: Auburn Research Student Symposium, Auburn University, AL, USA (2022)
- Student volunteer in organizing INCA (Indian National Cartographic Association) International Conference (2016)
- Sportsman-
 - Volleyball: Played for Visva-Bharati University, India in Zonal Inter-University Volleyball Championship (2013-2014)
 - Basketball: Runners-up in Intra-University Basketball Tournament (2010-2011)
 - Discus Throw and Javelin Throw: Won medals (gold-1, silver-2, Bronze- 1) in high school level athletic meets (2010, 2012)

Service to Community

- Served as a voluntary academic tutor to provide free tuition to the unprivileged school kids of my locality coming from economically humble families. (2016-2018)

Outreach Activities

- Judge: Greater East Alabama Regional Science and Engineering Fair (GEARSEF)- 2022, USA
- Judge: 'Special Awards' and 'Marketing Presentation' categories of South's Best Championship – 2021 (Demo Daze Best Robotics) organized by Auburn University, USA (2021)
- Member of state representatives to attend special national integration and leadership camp at Lakshadweep Islands, India from West Bengal State (2014)
- Student volunteer at National Service Scheme (nss.gov.in) (2011-2013)
- Participated in Snorkeling Experience program (Discover the Underwater World) organized by PADI (Professional Association of Diving Instructors) (2014)

Professional Memberships

- American Association of Geographers (AAG) (www.aag.org) (Since 2021)
- Regional Development and Planning specialty group of the American Association of Geographers (AAG)(RDPSG, AAG)(Since 2023)
- South Eastern Division of the American Association of Geographers (sedaag.org) (Since 2022)
- Geography Student Organization, Auburn University (auburn.campuslabs.com/engage/organization/gso) (Since 2021)
- The International Society for Photogrammetry and Remote Sensing Student Consortium (ISPRS SC), (<https://sc.isprs.org>) (Since 2020)
- International Water Resources Association (<https://www.iwra.org>) (Since 2020)

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