Pritam Das

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Education

Ph.D. with Data Science Option, **University of Washington** 2025

- Civil and Environmental Engineering | Hydrology and Hydrodynamics
- Dissertation: *Regulated Surface Water: How Much and Where is it Flowing?*

M.S., **University of Washington** 2022

- Civil and Environmental Engineering | Hydrology and Hydrodynamics
- Thesis: *Reservoir Assessment Tool 2.0.* Related paper and operational decision support system.

Integrated M.Tech., **Indian Institute of Technology Roorkee** 2020

- Department of Earth Sciences | Geological Technology

Awards

People's Choice Graduate Poster Presentation 2022

- American Water Resources Association (AWRA). Renton, WA.
- *People's Choice award for the Best Poster Presentation.*

Department Gold Medal 2020

- Department of Earth Sciences, Indian Institute of Technology, Roorkee. Roorkee, India.
- *Awarded with the Department Gold Medal for academic excellence.*

Peer Reviewed Publications

1. **Das, P**., and F. Hossain. (2025). Multi-satellite Tracking of Surface Water Storage Change in the Era of Surface Water and Ocean Topography (SWOT) Satellite Mission. *Earth and Space Science, Science from the Surface Water and Ocean Topography Mission (in press).*
2. **Das, P.**, S. Suresh, F. Hossain, *et al.* (2024). Forecast informed reservoir operations within a satellite-based framework for mountainous and high precipitation regions: The case of the 2018 kerala floods. *ASCE Journal of Hydrologic Engineering, 30(2),* 05025003. https://doi.org/10.1061/JHYEFF.HEENG-6276.
3. **Das, P.**, Hossain, F., Minocha, S., Suresh, *et al.* (2024). ResORR: A globally scalable and satellite data-driven algorithm for river flow regulation due to reservoir operations. *Environmental Modelling & Software*, *176*, 106026. https://doi.org/10.1016/j.envsoft.2024.106026.
4. **Das, P.**, Hossain, F., Khan, S., *et al.* (2022). Reservoir Assessment Tool 2.0: Stakeholder driven improvements to satellite remote sensing-based reservoir monitoring. *Environmental Modelling & Software*, *157*, 105533. https://doi.org/10.1016/j.envsoft.2022.105533.
5. Minocha, S., **Das, P**., & Hossain, F. (2025). Reservoir assessment tool (RAT): A Python package for monitoring the dynamic state of reservoirs and analyzing dam operations. *Digital Water*. https://www.doi.org/10.1080/28375807.2025.2487762.
6. Suresh, S., Hossain, F., Minocha, S., **Das, P.**, *et al.* (2024). Satellite-based tracking of reservoir operations for flood management during the 2018 extreme weather event in Kerala, India. *Remote Sensing of Environment*, *307*, 114149. https://doi.org/10.1016/j.rse.2024.114149.
7. Darkwah, G. K., Hossain, F., Tchervenski, V., Holtgrieve, G., Graves, D., Seaton, C., Minocha, S., **Das, P.**, Khan, S., & Suresh, S. (2024). Reconstruction of the Hydro-Thermal Behavior of Regulated River Networks of the Columbia River Basin Using Satellite Remote Sensing and Data-Driven Techniques. *Earth's Future*, *12*(10), e2024EF004815. https://doi.org/10.1029/2024EF004815.

8. Dixit, A., Goswami, A., Jain, S., & **Das, P.** (2024). Assessing snow cover patterns in the Indus-Ganga-Brahmaputra River Basins of the Hindu Kush Himalayas using snow persistence and snow line as metrics. *Environmental Challenges*, *14*, 100834. https://doi.org/10.1016/j.envc.2023.100834.
9. Dixit, A., Goswami, A., Jain, S. K., & **Das, P.** (2024). Remote sensing of snow cover dynamics and climate implications in the Indus, Ganga, and Brahmaputra River basins. *Climate Dynamics*, *62*(8), 7309–7327. https://doi.org/10.1007/s00382-024-07280-5.
10. Minocha, S., Hossain, F., **Das, P.**, *et al.* (2023). Reservoir Assessment Tool Version 3.0: A Scalable and User-Friendly Software Platform to Mobilize the Global Water Management Community. *Geoscientific Model Development Discussions*, *2023*, 1–23. https://doi.org/10.5194/gmd-2023-130.
11. Khan, S., Hossain, F., Pavelsky, T., Parkins, G. M., Lane, M. R., Gómez, A. M., Minocha, S., **Das, P.**, *et al.* (2023). Understanding Volume Estimation Uncertainty of Lakes and Wetlands Using Satellites and Citizen Science. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, *16*, 2386–2401. https://doi.org/10.1109/JSTARS.2023.3250354.
12. Hossain, F., **Das, P.,** Srinivasan, M. *et al.* (2022). Building User-Readiness for Satellite Earth Observing Missions: The Case of the Surface Water and Ocean Topography (SWOT) Mission. *AGU Advances*, *3*(6). https://doi.org/10.1029/2022AV000680.
13. Sattar, A., Goswami, A., Kulkarni, A. V., & **Das, P**. (2019). Glacier-Surface Velocity Derived Ice Volume and Retreat Assessment in the Dhauliganga Basin, Central Himalaya – A Remote Sensing and Modeling Based Approach. *Frontiers in Earth Science*, *7*, 105. https://doi.org/10.3389/feart.2019.00105.

Conference Presentations

1. H. Lee, F. Hossain, **Das, P.**, et al. Toward Integrative Flood and Drought Management Services for Lower Mekong (Invited). In *AGU Fall Meeting Abstracts*, 2024.
2. S. Minocha, F. Hossain, J. Zhao, S. Suresh and **Das, P**. Hidden Sediments, Lost Capacity: How Swiftly Are Global Reservoirs Depleting? In *AGU Fall Meeting Abstracts*, 2024.
3. **Das, P.**, N. Sobhani, T. Zhang, and N. Cherukuru. Interactive Visualization of the CESM-LENS2 Climate Dataset – Lessons Learned and Recommendations for Visualizing Gridded Datasets using Open Science Tools. In *104th Annual Meeting, American Meteorological Society, 2024.*
4. **Das, P.**, F. Hossain, and S. Minocha. Monitoring and predicting reservoir driven river regulation from space. In *AGU Fall Meeting Abstracts*, 2023.
5. Sobhani, N., **Das, P.**, Cherukuru, N. W., and Zhang T. Unlocking Climate Data Insights: A Comparative Study of Interactive Visualization Approaches. In *AGU Fall Meeting Abstracts*, 2023.
6. F. Hossain and **Das, P.**, Reservoir assessment tool 2.0: Stakeholder-driven improvements to satellite remote sensing-based monitoring of reservoirs. In *American Meteorological Society Annual Meeting – Roger Pielke Symposium*, 2023.
7. **Das, P.**, F. Hossain, S. Khan, N. K. Biswas, H. Lee, T. Piman, C. Meechaiya, U. Ghimire, and K. Hosen. Monitoring reservoir operations of the mekong river from space: A self-correcting multi-sensor approach. In *AWRA 2022 Annual Water Resources Conference*, 2022.

Magazine Articles

Das, P., S. Minocha, S. Khan, and F. Hossain. Fighting Flood Disinformation. In *International Water Power and Dam Construction*, 2025.

S. Minocha, **Das, P.** and F. Hossain., Reimagining dams as transit hubs: visualising global water networks with DamNet. In *International Water Power and Dam Construction*, 2024.

F. Hossain, **Das, P.**, et al. A satellite remote sensing perspective on water resources. In *International Water Power and Dam Construction*, 2023.

Das, P., F. Hossain, H. B. Helgason, and S. Khan. Satellites over the amazon capture the choking of the 'house of god' by the belo monte dam – they can help find solutions, too. In *The Conversation*, 2022.

Journal Peer Review Activity

Geophysical Research Letters (1)	Scientific Reports (1)	Environmental Earth Sciences (1)
Journal of Open-Source Software (1)	Journal of Hydrology (1)	Discover Applied Sciences (1)

Experience

Graduate Research Assistant at *University of Washington*, Seattle WA
March 16, 2021 – March 15, 2025

- Developed a satellite remote sensing-based operational reservoir dynamics monitoring and prediction framework, Reservoir Assessment Tool (RAT). Synergized process based hydrological modeling and Google Earth Engine (GEE) cloud-computing to estimate water fluxes and storage change of reservoirs
- Released the RAT tool as an open-source project and led collaboration for making it accessible for users as a python package. Developed and actively maintain a decision-support system over the Mekong region - RAT-Mekong.
- Developed a globally scalable river regulation model, ResORR, for modeling the regulation effect of upstream reservoirs on downstream water availability.
- Trained end-users and technical users of the tool involving personnel from member countries of the Mekong River Commission (MRC) and the Asian Disaster Preparedness Center (ADPC).

SIParCS Summer Intern at *National Center for Atmospheric Research*, Boulder CO
May 22, 2023 – August 05, 2023

- Developed interactive dashboard for visualizing global ensemble gridded predictions and compared two paradigms of building interactive dashboards.

Graduate Engineer Trainee (GET) at *Cairn Oil and Gas*, Gurugram India October 5, 2020 – February 26, 2021

- Analyzed well logs for identifying gas-bearing zones in Rageshwari volcanic formation, Barmer basin.

Summer Intern at *Cairn Oil and Gas,* Gurugram India May 8, 2019 – July 8, 2019

- Modeling response of a volcanic reservoir to tectonic stresses leading and related enhancement of permeability.

Teaching

Guest lecturer for "Satellite Remote Sensing for Water Resources"*, University of Washington*, Seattle WA 2024

- Led tutorial class for seniors and graduate students on storage change calculation of reservoirs.

TA for the course "Satellite Remote Sensing for Water Resources"*, University of Washington*, Seattle WA 2022

- Trained seniors and graduate students on Google Earth Engine (GEE) for cloud-computing satellite remote-sensing data.

Trainer at "Satellite Observations and Tools for Reservoir Monitoring in relation to Enhancing Flood and Drought Management in the Mekong Region", *Asian Disaster Preparedness Centre (ADPC)*, Bangkok, Thailand 2022

- Trained engineers and water resource managers of member countries of the Mekong River Commission (MRC) on the Reservoir Assessment Tool 2.0.

Trainer at "3rd SWOT Early Adopter Virtual Hackathon", *University of Washington*, Seattle WA 2022

- Trained and brainstormed with early adopters of the Surface Water and Ocean Topography (SWOT) mission at ADPC to enhance their existing projects.

Certifications

- Responsible Conduct of Research (RCR), *CITI Program*. Jun 2023.
- Power Your Presentations, *Dale Carnegie*. Jan 2021.
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, Structuring Machine Learning Project, *Coursera*. Oct 2020.
- Neural Networks and Deep Learning, Mathematics for Machine Learning, *Coursera*, Sep 2020.

Skills & Interests

- Programming Languages: Python, Bash, Google Earth Engine
- Software: ArcGIS, QGIS, Git, Figma, Linux, Dask, XArray, HoloViews
- Society Affiliations: Student Member at American Geological Union (AGU) and American Water Resources Associations (AWRA)
- Languages: English, Hindi, Bangla
- Interests: Photography, Hiking, Volunteering