

# CURRICULUM VITAE



## ATANU BHATTACHARYA

BE (Jadavpur University), M.Tech (IIT Roorkee), PhD (IIT Roorkee)  
Research Associate, University of St. Andrews, Scotland, UK  
Research Fellow, University of Zurich, Switzerland  
Alexander von Humboldt (AvH) Postdoctoral Fellow, TU Dresden  
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h-Index till date: 12

i10-Index till date: 16

## Permanent Address

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E3-398, New Joth Sibrampur, Green Field City  
Kolkata, West Bengal, Pin: 700141, India

## RESEARCH OBJECTIVE

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My objective is to become a distinguished researcher in the field of Remote Sensing and Satellite Image Processing in Earth Sciences application. My research interest is to study the glaciers and periglacial environment of high mountain Asia, mass balance study, retreat and dynamic behaviour of glacier especially in Himalayan region, climate change in high mountain Asia and its impacts, digital terrain analysis using optical and microwave remote sensing techniques. I am also interested to assess and monitor Natural Disasters, like earthquake, landslides, using remote sensing technique.

## EDUCATION HISTORY

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Aug 2008 – Sep 2013

**Indian Institute of Technology Roorkee**, India collaboration with  
**Norwegian Geotechnical Institute (NGI)**, Oslo, Norway

**Doctor of Philosophy (PhD)**

**Topic:** Surface Displacement Measurement Studies using DInSAR in a part of Himalaya.

**Highlight:** Pre-earthquake displacement measurement in seismically active region on Himalaya using InSAR techniques, such as conventional and multi-temporal DInSAR, and analyse the risk associated with the slow movement.

**Supervisors:** **Prof. M.L.Sharma**, HOD, Earthquake Engineering Dept. IIT Roorkee and **Prof. M.K.Arora**, Professor, Civil Engineering Dept. IIT Roorkee.

Aug 2003 – July 2005

**Indian Institute of Technology Roorkee**, India

**Master of Technology (M.Tech) in Structural Dynamics**

**Topic:** Estimation of Spectral acceleration in Himalayan Region using Strong Ground Motion Data.

**Highlight:** An attempt to develop an empirical attenuation relationship of peak ground acceleration and peak spectral acceleration in Himalayan region using previous recorded earthquake data.

**Supervisors:** **Prof. M.L.Sharma**, HOD, Earthquake Engineering Dept. IIT Roorkee and **Prof. Ashok Kumar**, Professor, Earthquake Engineering Dept. IIT Roorkee.

May 1997 – May 2002

**Jadavpur University**, Kolkata, India

**Bachelor of Mechanical Engineering (BME)**

**Highlight:** *Machine design, Kinematics and Dynamics, Thermodynamics, Fluid Power Control.*

## **WORK EXPERIENCE**

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- 2020 – Till date      **Associate Professor** in Department of Earth Sciences & Remote Sensing, JIS University, Kolkata  
**Highlight:** *Teaching and Research*
- 2019 – 2020      **Research Fellow** in Department of Geography & Sustainable Development, University of St. Andrews, Scotland, UK  
**Highlight:** *Estimation of global glacier mass changes: a subproject within the research unit "Understanding the global freshwater system by combining geodetic and remote sensing information with modelling using a calibration/data assimilation approach (GlobalCDA)*
- 2017 – 2019      **Research Fellow** in Department of Geography, University of Zurich, Switzerland  
**Highlight:** *Estimation of global glacier mass changes: a subproject within the research unit "Understanding the global freshwater system by combining geodetic and remote sensing information with modelling using a calibration/data assimilation approach (GlobalCDA)*
- 2016 – 2020      **Associate Professor**, Mechanical Engineering Department Dr. Sudhir Chandra Sur Degree Engg College (JIS Group)  
**Highlight:** *Teaching and Research*
- 2014 – 2016      **Post-Doctoral Fellow** in TU Dresden, Dresden, Germany  
**Alexander von Humboldt Fellow**  
**Highlight:** *Glaciers and periglacial environment of high mountain areas, mass balance study, retreat and dynamic behaviour of glacier especially in Himalayan region, climate change in high mountain areas and its impacts, digital terrain analysis using optical and microwave remote sensing techniques.*
- 2012 – 2014      **Associate Professor** in Applied Science Department Bharati Vidyapeeth's College of Engineering, New Delhi, India  
**Highlight:** *Teaching and Research*
- 2011 – 2012      **Assistant Professor** in Mechanical Engineering Department Galgotias University, Greater Noida, India  
**Highlight:** *Teaching and Research*
- 2005 – 2008      **Senior Lecturer** in Mechanical & Automation Engineering Dept Amity University, Noida, India  
**Highlight:** *Teaching and Research*
- 2002 – 2003      **Graduate Engineer Trainee** in Multitech Engineers, Kolkata, West Bengal, India  
**Highlight:** *Design of Mechanical Components.*

## **RECOGNISED ACHIEVEMENTS**

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**Research Fellow (Swiss National Science Scholarship)** in Department of Geography & Sustainable Development, University of St. Andrews, Scotland, UK

**Research Fellow (Swiss National Science Scholarship)** in Department of Geography, University of Zurich – Irchel, Switzerland

**Alexander von Humboldt (Alexander von Humboldt) Fellow** in Technische Universität Dresden, Germany

Research fellow in **Norwegian Geotechnical Institute (NGI)**, Oslo, Norway

**Ministry of Human Resource and Development (MHRD)**, India, Doctoral Fellowship in IIT Roorkee

**Ministry of Human Resource and Development (MHRD)**, India, Post Graduate Fellowship in IIT Roorkee (GATE)

## **RESERCH PUBLICATIONS IN JOURNALS**

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- Mukherjee K, **Bhattacharya A**, Ghuffar S, Menounos B. Multi-temporal geodetic mass balance and modelled seasonal mass balance to inform about climate sensitivity of Chhota Shigri Glacier. **Remote Sensing Applications: Society and Environment** (under review).
- Piermattei L, Zemp M, Sommer C, Brun F, Braun M, Andreassen LM, Belart MCJ, Berthier E, **Bhattacharya A**, Vock LB, Bolch T, Dehecq A, Dussaillant I, Falaschi D, Florentine C, Floricioiu D, Ginzler C, Hugonnet R, Huss M, Kääh A, Klug C, Knuth F, Krieger L, Frenierre JL, McNabb R, McNeil C, Sass L, Seehaus T, Shean D, Treichler D, Wendt A, Yang R (2023). Observing glacier elevation changes from spaceborne optical and radar sensors – an inter-comparison experiment using ASTER and TanDEM-X data. **The Cryosphere Discussions**. <https://doi.org/10.5194/egusphere-2023-2309>, 2023. IF:5.805.
- Falaschi D, **Bhattacharya A**, Guillet G, Huang L, King O, Mukherjee K, Rastner P, Yao T, Bolch T (2023) Annual to seasonal glacier mass balance in High Mountain Asia derived from Pléiades stereo images: examples from the Pamir and the Tibetan Plateau. **The Cryosphere**, 17, 5435-5458. <https://doi.org/10.5194/tc-17-5435-2023>, IF:5.805.
- **Bhattacharya A**, Mukherjee K, King O, Karmakar S, Kropáček Jan, Remya SN, Kulkarni AV, Bolch T (2023) Influence of climate and non-climatic attributes on declining glacier mass budget and surging in Alaknanda Basin and its surroundings. **Global and Planetary Change**, 230, 104260. <https://doi.org/10.1016/j.gloplacha.2023.104260>. IF:5.12.
- Falaschi D, **Bhattacharya A**, Guillet G, Huang L, King O, Mukherjee K, Rastner P, Yao T, Bolch T (2023) Annual to seasonal glacier mass balance in High Mountain Asia derived from Pléiades stereo images: examples from the Pamir and the Tibetan Plateau. **The Cryosphere Discussions**. <https://doi.org/10.5194/tc-2022-264>, IF:5.805.
- King O, Ghuffar S, **Bhattacharya A**, Ruzhen Y, Yau TD, Bolch T (2023) Glaciological and climatological drivers of heterogeneous glacier mass loss in the Tanggula Shan (Central-Eastern Tibetan Plateau), since the 1960s. **Journal of Glaciology**, 1-18. [doi:10.1017/jog.2023.5](https://doi.org/10.1017/jog.2023.5). IF: 4.28
- Allen SK, Sattar A, King O, Zhang G, **Bhattacharya A**, Yao T, Bolch T (2022). Glacial Lake outburst flood hazard under current and future conditions: worst-case scenarios in a transboundary Himalayan basin. **Natural Hazards & Earth System Science**, 22, 3765-3785, doi: <https://doi.org/10.5194/nhess-22-3765-2022>, IF: 4.58
- Ghuffar S, Bolch T, Rupnik E, **Bhattacharya A** (2022). A pipeline for automated processing of Corona KH-4 (1962-1972) stereo imagery. **IEEE Transaction on Geosciences & Remote Sensing**, 60, 1-14, doi: [10.1109/TGRS.2022.3200151](https://doi.org/10.1109/TGRS.2022.3200151) IF: 8.125
- Bolch T, Yao T, **Bhattacharya A**, Hu Y, King O, Lin L, Pronk JB, Rastner P, Zhang G (2022). Earth Observation to Investigate Occurrence, Characteristics and Changes of Glaciers, Glacial Lakes and Rock Glaciers in the Poiqu River Basin (Central Himalaya). **Remote Sensing**, 14, 1927, doi.: <https://doi.org/10.3390/rs14081927>. IF: 4.52
- Allen SK, Sattar A, King O, Zhang G, **Bhattacharya A**, Yao T, Bolch T (2021). Glacial Lake outburst flood hazard under current and future conditions: first insight from a transboundary Himalayan basin. **Natural Hazards & Earth System Science Discussions**, doi.: <https://doi.org/10.5194/nhess-2021-167>. IF: 4.58
- **Bhattacharya A**, Bolch T, Mukherjee K, King O, Menounos B, Kapitsa V, Neckel N, Yang W, Yao T (2021). High Mountain Asian Glacier Response to Climate Revealed by Multi-temporal Satellite observations since the 1960s. **Nature Communications**. 12, 4133. doi.: [10.1038/s41467-021-24180-y](https://doi.org/10.1038/s41467-021-24180-y) IF: 17.69
- King O, **Bhattacharya A**, Bolch T (2021). The presence and influence of glacier surging around the Geladandong Ice Caps, North East Tibetan Plateau. **Advances in Climate Change Research**. doi.: <https://doi.org/10.1016/j.accr.2021.05.001>. IF: 4.75

- Kneib M, Miles E, Buri P, Jola S, Herreid S, **Bhattacharya A**, Watson S, Bolch T, Quincey D, Pellicciotti F (2021). Mapping ice cliffs on debris-covered glaciers using multispectral satellite images. *Remote Sensing of Environment*, 253, 112201, doi.: <https://doi.org/10.1016/j.rse.2020.112201> IF: 13.85
- King O, **Bhattacharya A**, Bolch T, Ghuffar S, Tait A, Guilford S, Elmore AC (2020). Six decades of glacier mass changes around Mt. Everest are revealed by historical and contemporary images. *One Earth*, 3 (5), 608-620, doi.: <https://doi.org/10.1016/j.oneear.2020.10.019>. IF: 14.95
- King O, **Bhattacharya A**, Bhambri R, Bolch T (2019). Glacier lake expansion exacerbates Himalayan glacier mass loss. *Nature Scientific Report*, 9 (18145) doi.: <https://doi.org/10.1038/s41598-019-53733-x> IF: 5.00
- Mukherjee K, **Bhattacharya A**, Pieczonka T, Ghosh S, Bolch T (2018). Glacier mass budget and climate reanalysis data indicate a climate shift around 2000 in Lahaul-Spiti, Western Himalaya. *Climatic Change*. 148 (1-2), 219-233. <https://doi.org/10.1007/s10584-018-2185-3> IF: 5.18
- **Bhattacharya A**, Bolch T, Mukherjee K, Pieczonka T, Kropáček Jan, Buchroithner MF (2016). Overall recession and mass budget of Gangotri and its tributary Glaciers, Garhwal Himalayas, from 1965 to 2015 using remote sensing data. *Journal of Glaciology*. 62(236):1115-1133. <https://doi.org/10.1017/jog.2016.96> IF: 4.28
- **Bhattacharya A**, Mukherjee K. (2016). Review on InSAR based displacement monitoring of Indian Himalayas: Issues, Challenges and possible advanced alternatives. *Geocarto International*. 32 (3), 298-321. <https://doi.org/10.1080/10106049.2016.1140820> IF: 3.80
- Kropáček Jan, Varilová Z, Baron I, **Bhattacharya A**, Warth G and Hochschild V. (2015). Remote sensing for characterisation and kinematic analysis of giant slope failures: Debre Sina landslide, Main Ethiopian rift escarpment. *Remote Sensing*, 7 (12), 16183-16203. <https://doi.org/10.3390/rs71215821> IF: 4.52
- **Bhattacharya A**, Mukherjee K, Manoj Kuri, Malte Vöge, Sharma ML, Arora MK, Rajinder K Bhasin. (2015). Potential of SAR Intensity Tracking Technique to Estimate Displacement Rate in a Landslide Prone Area in Haridwar Region, India. *Natural Hazards*, 79 (3), 2101-2121. <https://doi.org/10.1007/s11069-015-1949-6> IF: 3.16
- **Bhattacharya A**, Voege M, Arora MK, Sharma ML, Bhasin R (2014) Surface Displacement Estimation using Space-borne SAR Interferometry in a Small Portion along Himalayan Frontal Fault. *Optics and Lasers in Engineering*, 53, 164-178. <https://doi.org/10.1016/j.optlaseng.2013.09.001> IF: 5.67
- Mukherjee K, **Bhattacharya A**, Ghosh, JK, Arora MK (2014) Comparative Performance of Fractal Based and Conventional Methods for Dimensionality Reduction of Hyperspectral Data. *Optics and Lasers in Engineering*, 55, 267-274. <https://doi.org/10.1016/j.optlaseng.2013.11.018> IF: 5.67
- **Bhattacharya A**, Voege M, Arora MK, Sharma ML, Bhasin R (2013) Surface Displacement Estimation using Multi-temporal SAR Interferometry in a Seismically Active Region of the Himalaya. *GeoRisk: Assessment and Management of Risk for Engineered Systems and Geohazards*, 7 (3), 184-197. <https://doi.org/10.1080/17499518.2013.798185> IF: 3.39
- **Bhattacharya A**, Arora MK, Sharma ML (2013) Usefulness of Adaptive Filtering for Improved Digital Elevation Model Generation. *Journal of Geological society of India*, 82 (2), 153-161. <https://doi.org/10.1007/s12594-013-0133-4> IF: 3.28
- **Bhattacharya A**, Sharma ML, Arora MK (2012) Surface Displacement Estimation along Himalayan Frontal Fault using Differential SAR Interferometry. *Natural Hazards*, 64(2), 1105-1126. <https://doi.org/10.1007/s11069-012-0292-4> IF: 3.16
- **Bhattacharya A**, Arora MK, Sharma ML (2012) Usefulness of Synthetic Aperture Radar (SAR) Interferometry for Digital Elevation Model (DEM) Generation and Estimation of Land Surface Displacement in Jharia Coal Field Area. *Geocarto International*, 27 (1), 57-77. <https://doi.org/10.1080/10106049.2011.614358> IF: 3.80
- **Bhattacharya A**, Arora MK, Sharma ML (2012) Improved Digital Elevation Model Creation using SAR Interferometry in Plane and Undulating Terrains. *Himalayan geology*, 33 (1), 29-44. <http://repository.iitr.ac.in/handle/123456789/6658> IF: 1.31

## RESERCH PUBLICATIONS IN CONFERENCES

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- Bhattacharya, Atanu; Mukherjee, Kriti; King, Owen; Bolch, Tobias (2023) Examining the impact of climatic and non-climatic attributes on glacier mass budget and surging in Alaknanda Basin, India. Abstract ID: 12836, EGU General Assembly, 23-28 April, 2023, Vienna, Austria. DOI:<https://doi.org/10.5194/egusphere-egu23-12836>
- Bolch, Tobias; Falaschi, Daniel; Bhattacharya, Atanu; Huang, Lei; King, Owen (2023) Annual to seasonal glacier mass balance in High Mountain Asia derived from Pleiades stereo images: example from the Pamir and Tibetan Plateau. Abstract ID: 12612, EGU General Assembly, 23-28 April, 2023, Vienna, Austria. DOI: <https://doi.org/10.5194/egusphere-egu23-12612>
- Karmakar, Subhendu; Paul, Ankita; **Bhattacharya, Atanu** (2022) Glacier mass budget and associated influence of the climate during 2000-2020 in the Alaknanda Basin, Uttarakhand. National Symposium on Tropical Meteorology (TROPMET 2022), 29 Nov-02 Dec 2022, IISER Bhopal, MP, India. [https://conf.iiserb.ac.in/TROPMET/file/Abstract\\_book\\_final.pdf](https://conf.iiserb.ac.in/TROPMET/file/Abstract_book_final.pdf)
- Bolch, Tobias; King, Owen; **Bhattacharya, Atanu** (2022) Accelerated glacier mass loss in the Himalayas since the 1960s and the importance of glacier lakes. Sustainable Mountain Development Conference, Kathmandu, Nepal, 01-03 December, 2022
- Falaschi, Daniel, Huang Lei, **Bhattacharya, Atanu**, Mukherjee, Kriti, King, Owen, Guillet, Gregoire, Bolch, Tobias (2022) Annual to seasonal glacier mass balance in High Mountain Asia from Pleiades stereo images: examples from the Pamir and the Tibetan Plateau. ID 272, P.3.2: Cryosphere & Hydrology, 2022 Dragon-5 Symposium, 17-22 October.
- Bolch, Tobias; **Bhattacharya, Atanu**, Falaschi, Daniel, Guillet, Gregoire King, Owen (2022) Characteristics and Changes of Glaciers and Rock Glaciers in the Tien Shan During the Last 50 Years. 2022 IGSBB & UKASC 22, Aug 30-Sep 02 2022. Edinburgh, Scotland, UK.
- **Bhattacharya, Atanu**, Falaschi, Daniel; Bolch, Tobias (2022) Methodological challenges in retrieving glacier annual to seasonal glacier elevation changes from sub-meter Pleiades stereo imagery: an example from Muztagh Ata (Eastern Pamir). 2022 IGSBB & UKASC 22, Aug 30-Sep 02 2022. Edinburgh, Scotland, UK.
- Bolch, Tobias; Yao, Tandong; Rastner, Philipp; Zhang, Guoqing; **Bhattacharya, Atanu**; King, Owen; Hu, Yan; Liu, Lin (2021) Earth Observation to Investigate Characteristics and Changes of Glaciers and Rock Glaciers in High Mountain Asia. 2021 Dragon 4 symposium, July 19-23 2021. Abstract ID: 311.
- **Bhattacharya A**, Bolch T, Mukherjee K, King O, Menounos B, Neckel N, Yang W, Yao TD (2020) Satellite-based estimates of glacier mass change in High Mountain Asia since the 1960s. AGU Fall Meeting 2020, December 1-17, 2020. Abstract ID: 743293.
- King O, **Bhattacharya A**, Bolch T, Guilford S, Tait A (2020) Examining the variability of six decades of glacier mass loss in the Everest region, Central Himalaya. AGU Fall Meeting 2020, December 1-17, 2020. <https://agu.confex.com/agu/fm20/meetingapp.cgi/Paper/743597>
- Bolch T, Rastner P, Pronk JB, **Bhattacharya A**, Liu L, Hu Y, Zhang G, Yao T (2020) Occurrence and characteristics of ice-debris landforms in the Poiqu basin-central Himalaya. EGU2020: Sharing Geoscience Online, May 4-8 2020, Abstract ID: EGU2020-19637. <https://doi.org/10.5194/egusphere-egu2020-19637,2020>
- McCarthy M, Burger F, Ayala A, Fugger S, Shaw TE, Miles E, MacDonell S, McPhee J, **Bhattacharya A**, Bolch T, Pellicciotti F (2020) The impact of glaciers on the long-term hydrology of a high-elevation Andean catchment. EGU2020: Sharing Geoscience Online, May 4-8 2020, Abstract ID: EGU2020-21463. <https://doi.org/10.5194/egusphere-egu2020-21463,2020>
- **Bhattacharya A**, Bolch T, King O, Yao TD (2019) Reanalyses of glacier mass budgets in High Mountain Asia based on geodetic measurements since 1960s. AGUs Fall Meeting, December 9-13 2019, San Francisco, CA, USA, Abstract ID: 520697. <https://agu.confex.com/agu/fm19/meetingapp.cgi/Paper/520697>
- Bolch T, **Bhattacharya A**, King O, Allen S (2019) Characteristics and changes of glaciers, rock glaciers and glacial lakes in High Mountain Asia since the 1960s. AGUs Fall Meeting, December 9-13 2019, San Francisco, CA, USA, Abstract ID: 511849. <https://agu.confex.com/agu/fm19/meetingapp.cgi/Paper/511850>

- Bolch T, Allen S, King O, **Bhattacharya A**, Zhang G, Yao TD (2019) Glacial Lakes in the Himalaya: Threat to glaciers and downstream communities. AGUs Fall Meeting, December 9-13 2019, San Francisco, CA, USA, Abstract ID: 511850. <https://agu.confex.com/agu/fm19/meetingapp.cgi/Paper/511849>
- King O, **Bhattacharya A**, Bolch T, Guilford S, Hyde SB, Tait A (2019) Examining the temporal variability of the mass balance of Everest's glaciers over the last six decades. AGUs Fall Meeting, December 9-13 2019, San Francisco, CA, USA, Abstract ID: 572404. <https://agu.confex.com/agu/fm19/meetingapp.cgi/Paper/572404>
- **Bhattacharya A**, King O, Bhambri R, Bolch T (2019) Glacier lakes drives increasing mass loss of Himalayan glaciers. 27th IUGG General Assembly, July 8-18 2019, Montreal, Quebec, Canada.
- Rastner P, **Bhattacharya A**, Hu Y, Liu L, Bolch T (2019) Occurrence and characteristics of rock glaciers in the Poiqu basin-central Himalaya. 2019 Dragon 4 symposium, June 24-28 2019, Ljubljana, Slovenia.
- Bolch T, King O, **Bhattacharya A**, Bhambri R, Yao T (2019) Glacier Lake expansion exacerbates Himalayan glacier mass loss. 2019 Dragon 4 symposium, June 24-28 2019, Ljubljana, Slovenia.
- **Bhattacharya A**, Ghosh S, Mukherjee K (2018) Multi-decadal mass budget and area changes of some eastern Himalayan glaciers (Nepal-Sikkim) using Remote Sensing techniques. 4th IEEE International Conference on Recent Advances in Information Technology (RAIT-2018), March, 15-17, 2018, ISM Dhanbad, India.
- Manoj Kuri, Manoj K. Arora, **Bhattacharya A**, Sharma ML (2017). Microwave remote sensing based Small Baseline Subset technique for estimation of slope movement in Nainital area, India. 4th IEEE International Conference on Image Information Processing, December, 21-23, 2017, HP, India. DOI: [10.1109/ICIIP.2017.8313681](https://doi.org/10.1109/ICIIP.2017.8313681)
- Manoj Kuri, **Bhattacharya A**, Manoj K. Arora, Sharma ML (2016). Time series InSAR techniques to estimate deformation in a landslide prone area in Haridwar region, India. IGARSS 2016, July 10-15, 2016, Beijing, China, DOI: [10.1109/IGARSS.2016.7730785](https://doi.org/10.1109/IGARSS.2016.7730785).
- Mölg N, Bauder A, **Bhattacharya A**, Bolch T, Vieli A (2016). Surface characteristics and evolution of debris covered glaciers. EGU General Assembly, Vol 18, Austria, Vienna.
- **Bhattacharya A**, Manfred Buchroithner, Guido Staub (2016). Glacier Dynamics of George VI Ice Shelf Tributary Glaciers from SAR Feature Tracking. In "Living Planet Symposium 2016" organized by European Space Agency (ESA), Prague, Czech Republic during May 09-13.
- **Bhattacharya A**, Manoj Kuri, Manoj K. Arora, Sharma ML (2015). Application of SAR Interferometry for detection of landslide zone and deformation pattern. International Conference on "Disaster Risk Reduction: Challenges and Opportunities for Sustainable Growth" organised by Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi during October 28-30, 2015.
- Vöge M, Frauenfelder R, Ekseth K, Arora MK, **Bhattacharya A**, Bhasin RK (2015) The Use of SAR Interferometry for Landslide Mapping in the Indian Himalayas. *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XL-7/W3, 857-863, doi:10.5194/isprsarchives-XL-7-W3-857-2015, 2015, pp. 857-863.
- **Bhattacharya A**, Jan Kropáček, Manfred F Buchroithner, Gaowei Jia, Guido Staub (2014) Glacier Dynamics and Behavior of George VI Ice Shelf Using Remote Sensing Techniques. *Alexander von Humboldt network meeting; November 26-28 2014, Würzburg, Germany.*
- Kuri M, **Bhattacharya A**, Arora MK, Sharma ML (2014) Identifying Landslide Susceptible Area Using SAR Interferometry. *IAEG XII Congress: Engineering Geology for Society and Territory. September 15-19, 2014, Torino, Italy.*
- **Bhattacharya A**, Sharma ML, Arora MK (2012) Estimation of convergence rate of Indian plate using Differential SAR Interferometry. *International conference of Geospatial Technique and Application (Geomatrix' 12) Organized by CSRE of Indian Institute of Technology Bombay on 26-29 February, 2012.*
- **Bhattacharya A**, Arora MK, Sharma ML (2012) A study of surface displacement estimation using Differential SAR Interferometry in the Himalayan Region. *Proceedings in National Seminar on Geospatial Solutions for Resource Conservation and Management. 18-20 January, 2012, pp. 387-395.*
- **Bhattacharya A**, Arora MK, Sharma ML (2011) Detection of Active Landslide Areas in Himalayas using Small Baseline Subset Interferometry. *Proceedings in National Conference on Recent Advancement of*

*Civil Engineering (RACE 2011), Organized by Department of Civil Engineering, Benaras Hindu University (BHU), UP.ISBN: 978-81-921121-0-7, pp. 336-342.*

- **Bhattacharya A**, Arora MK, Sharma ML (2010) Application of SAR Interferometry for DEM Generation: Case Studies in Two Regions with Varied Terrain Conditions. *Proceedings in Conference on Remote Sensing and GIS for Environmental Management (RSGIS-EM2010)*. Organized by Department of Civil Engineering, Jamia Millia Islamia, New Delhi. 14th April, pp. 1-16.
- **Bhattacharya, A**, M. L. Sharma, Ashok Kumar and Hilmar Bungum (2007) Definition of Horizontal component of strong ground motion using Indian region data set, *Technical Report 1, Indo Norwegian programme of Institutional Cooperation on Earthquake Engineering, final report 2003-2006*, Department of Earthquake Engineering, IIT Roorkee, NOR SAR, Norway and Norwegian Geotechnical Institute, Norway, 1-9.
- **Bhattacharya A**, Ghosh JK (2004) GPS Based Determination of Wind Force. *24<sup>th</sup> ISRS Annual Convention and National Symposium on Converging Space Technologies for National development, November 3-5, Jaipur, India, pp 235-237.*
- Ghosh JK, **Bhattacharya A** (2004) Calculation of wind force using GPS-A feasibility study. *Paper was selected in International Conference of ION GNSS 2004, Sep 21-24 in Long Beach, California.*

## BOOK CHAPTER

- Bolch T, **Bhattacharya A**, King O (2020): Die Gletscher Hochasiens im Klimawandel. In: Lozán J. L., S.-W. Breckle, H. Graßl, et al. (Hrsg.). *Warnsignal Klima: Hochgebirge im Wandel*. pp. 23-27. Online: [www.klima-warnsignale.uni-hamburg.de](http://www.klima-warnsignale.uni-hamburg.de). doi:10.2312/warnsignal-klima.hochgebirge-im-wandel.03.
- Bolch T, Pieczonka T, Holzer N, Peters J, Mukherjee K, **Bhattacharya A** (2017) Knowledge about glacier mass changes in high Asia significantly improved due to TUD-IFK research. In: Burghardt, Dirk. *Vom Gelände zur Karte ... Festschrift anlässlich des 65. Geburtstages von Prof. Dr. phil. habil. Manfred F. Buchroithner*. Dresden: Technische Universität Dresden, 13-24. ISBN: 978-3-86780-497-4

## SPONSORED RESEARCH PROJECTS

Duration	Name of the project	PI & Co-PI	Funding Agency	Status
2022-2025	An Integrated Approach to Understand Six Decades of Glacier Variability in The Himalaya	<b>Atanu Bhattacharya</b>	DST-SERB 37,60,240/-	Funded (On going)
2023-2027	Understanding and modelling the interactions between Debris and glacier Ice in a changing climate (D-ICE)	Andreas Vieli; Argha Banerjee; Francesca Pellicciotti; <b>Atanu Bhattacharya</b> ; Bharath Shekar; Arjun Dutta; Madhusudan Sati	MoES-SNSF 23,01,120/-	Funded (On going)

## CONSULTANCY PROJECTS

Duration	Name of the project	PI & Co-PI	Funding Agency	Status
2019-2019	Preparation of Guidelines for the Management of Glacial Hazards and Risk including Glacial Lake Outburst Flood	<b>Atanu Bhattacharya</b>	University of Zurich	Completed

2018-2018	Natural Hazard Assessment for the Reconstruction of Critical Transport and Flood Protection Infrastructure in Republic of Tajikistan- Summary and Recommendations Report on Hazard Assessment	<b>Atanu Bhattacharya &amp; Kriti Mukherjee</b>	University of Zurich sponsored by World Bank	Completed
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## **OTHERS PROJECT INVOLVEMENT**

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2018 - 2020	Topic: <b>Estimation of global glacier mass changes within the project Understanding the global fresh-water system (GlobalCDA)</b> Funding: <b>Swiss National Science Foundation (SNSF).</b>
2019-2020	Topic: <b>Generation of georeferenced visible wavelength mosaic, DEM and DEM difference between them for the Solo-Khumbu region from 1962 to present day</b> Funding: <b>National Geographic Society, USA</b>
2018-2020	Topic: <b>Understanding and quantifying the transient dynamics and evolution of debris-covered glaciers</b> Funding: <b>Swiss National Science Foundation (SNSF).</b>
2018-2020	Topic: <b>Recent and future evolution of glacial lakes in China: spatio-temporal diversity and hazard potential</b> Funding: <b>Swiss National Science Foundation (SNSF).</b>
2014 - 2016	Topic: <b>Overall health of some Himalayan glaciers using Remote Sensing data (Declassified KH-4, KH-9 and other stereo imageries)</b> Scheme: Alexander von Humboldt (AvH), Germany.  Topic: <b>Clustering of George VI Ice Shelf Tributary Glacier Types</b> Scheme: BMBF Project collaboration with TU Dresden, Germany and Depto. de Ciencias Geodesicas y Geomatica, Universidad de Concepcion, Chile.
2010 - 2014	Title: <b>The Use of SAR Interferometry for Landslide Mapping in the Indian Himalayas</b> Scheme: Department of Science and Technology project (Indo-Norwegian project for Geohazards DST-331-CED) collaboration with IIT Roorkee and Norwegian Geotechnical Institute (NGI), Oslo, Norway.
2003 - 2006	Title: <b>Estimation of Spectral acceleration in Himalayan Region using Strong Ground Motion Data</b> Scheme: Indo Norwegian Programme on Institutional Cooperation on Earthquake Engineering, 2003-2006 (NOR-291-EQD)

## **GUEST LECTURES AND INTERVIEWS**

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29 <sup>th</sup> September 2020	Title: <b>Glacier response to climate change in the High Mountain Asia using remotely sensed data.</b> Organized by: <b>Climate Change Impact in Water Resource System (CCIWRS 2020)</b> , sponsored by TEQIP III in association with IIC, NIT Silchar, India.
16 <sup>th</sup> December 2014	Title: <b>Recent Trends of Satellite Remote Sensing in Natural Disasters</b> Organized by: <b>Indian Meteorological Society</b> , Kolkata, West Bengal, India.
06 <sup>th</sup> Nov 2014 (Interview)	Title: <b>The status of glacier study in Himalayan region</b> Published in: <b>Sächsische Zeitung</b> , Dresden, Germany
11 <sup>th</sup> July 2014 (Interview)	Title: <b>The change in glacier</b>



Published in: **Dresden Concept**, Dresden, Germany  
(<http://dresdenpost.de/index.php/rubriken/bildung-wissenschaft/universitaet/item/2687-tud-aktuelles-d>)

6<sup>th</sup>-17<sup>th</sup> June 2011

Title: **Application of Microwave Remote Sensing Techniques in Earthquake & Landslide Study.**  
Organized by: **SAARC Disaster Management Centre**, New Delhi, India.

26<sup>th</sup>-27<sup>th</sup> March 2011

Title: **Application of Remote Sensing in Disaster Mitigation.**  
Organized by: **Quality Improvement Programme (QIP) and Centre of Excellence in Disaster Mitigation & Management, IIT Roorkee**, India.

## **TEACHING COURSE UNDERTAKEN**

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2020 – Till Date

Title: **Fundamental of Remote Sensing, Digital Image Processing**

Course Level: **Post Graduation**, JIS University, Kolkata, India.

2016 - 2018

Title: **Engineering Mechanics, manufacturing Process, Engineering Drawing**

Course Level: **Under Graduation**, Dr. Sudhir Chandra Sur Degree Engineering College, Kolkata, India.

2012 - 2014

Title: **Engineering Mechanics, manufacturing Process, Engineering Drawing, Digital Image Processing**

Course Level: **Under Graduation**, Bharati Vidyapeeth's College of Engineering, New Delhi, India.

2011 - 2012

Title: **Advanced Strength of Materials**

Course Level: **Post Graduation**, Galgotia University, Greater Noida, India

2009 - 2011

Title: **Engineering Seismology (Tutorial), Digital Image Analysis (Lab), Microwave Remote Sensing**

Course Level: **Post Graduation**, IIT Roorkee, India.

2005 - 2008

Title: **Thermodynamics, Strength of Materials, IC Engine and Gas Turbine, Machine Design, Elements of Mechanical Engineering, Finite Element Methods, MATLAB**

Course Level: **Under Graduation**, Amity University, Noida, India

## **WORKSHOP ATTENDED**

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30-31<sup>st</sup> Aug 2009

Title: **SARMAP Workshop on SAR Interferometry in IIT Roorkee, India**

Coordinator: Dr. Francesco Holecz, CEO, SARMAP, Switzerland

Nov 2009

Title: **Training on SARscape**

Coordinator: Sierra Atlantic Software Service Ltd. IIT Roorkee, India

26-30<sup>th</sup> April 2016

Title: **10th Mountain Cartography Workshop**, Berchtesgaden, Germany

Coordinator: Institute for Cartography, TU Dresden, Germany.

## **OTHER ACTIVITIES AND SKILLS**

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### **Research Skills:**

- **Glaciology:** Glaciers and periglacial environment of high mountain areas, mass balance study, retreat and dynamic behaviour of glacier, climate change in high mountain areas and its impacts, digital terrain analysis.
- **Disaster Monitoring:** Assessment and monitoring Natural Disasters, like earthquake, landslides.
- **Satellite Image Analysis:** Optical and Microwave Remote Sensing.

### **Computer Skills:**

- **SAR Interferometry Software:** GAMMA (ISP/MSP/DIFF-GEO/DISP/LAT/IPTA), SARscape, ATLANTIS, BEST (Basic Envisat SAR Toolbox), NEST (Next ESA SAR Toolbox), STAMPS, GSAR, SNAPHU, ROI-PAC.
- **Image Processing Software:** ArcGIS, ERDAS IMAGINE, ENVI, PCI-Geomatica Orthoengine, RSG-Graz, QGIS, Sentinel-1 Toolbox.
- **Others:** Python, C++, MATLAB, NASA AMES PIPELINE

#### Language Skills:

- Bengali -Advanced (Native Tongue)
- Hindi - Advanced (Reading, writing and speaking)
- English- Advanced (Reading, writing and speaking)
- German- very basic (Reading, writing and understand)

#### Course Development:

- Course Title: **Internal Combustion Engine and Gas Turbine**  
Course Level: Undergraduate  
Dept.: Mechanical and Automation Engineering, Amity University, India.

#### Event Administration:

- Event: **Head of Examination Cell/ Member of Examination Cell**  
Institutes: Bharati Vidyapeeth's College of Engineering, New Delhi, India.  
Amity University, Noida, India.  
Duration: 2012-2014 (Bharati Vidyapeeth's College of Engineering, New Delhi, India)  
2006-2008 (Amity University, Noida, India)

#### Journal Review Activity:

- Responsibility: **International and National Manuscript Reviewer**  
Journal Name:
  1. Nature Communications
  2. Geocarto International
  3. Optics and Laser in Engineering
  4. Natural Hazards
  5. Remote Sensing of Environment
  6. International Journal of Remote Sensing
  7. Remote Sensing
  8. Applied Water Resource
  9. Himalayan Geology
  10. Journal of Geological Society of India
  11. Remote Sensing Letters
  12. Geomatics, Natural Hazards and Risk
  13. Journal of Glaciology

#### Personal Information:

Father's Name: Late Sukhadananda Bhattacharya  
 Mother's Name: Monika Bhattacharya  
 Citizenship: Indian Sex: Male  
 Marital Status: Married Spouse's Name: Dr. Kriti Mukherjee

#### REFERENCES

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##### Dr. Tobias Bolch

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Glaciology & Geomorphodynamics  
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**DECLARATION**

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I certify that above statement is true, complete and correct to the best of my knowledge and belief.

***Dr. Atanu Bhattacharya***

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