

Address: Room 523, Gould Simpson building, Department of Geosciences,  
University of Arizona, 1040 E. 4th Street Tucson, AZ 85721, USA

### **Academic qualifications**

**PhD - Glaciology and Remote sensing** Nov 2012 – Jun 2017  
Department of Geography, Swansea University UK  
Thesis: Understanding long-term glacier dynamics in the Himalayas using remote sensing.  
Advisors: Prof Adrian Luckman, Prof Bernd Kulesa.

**Master of Science – Remote sensing** 2010 – 2012  
Department of Civil Engineering, Anna University, Chennai, India  
Thesis: Improved band selection and fusion of hyperspectral image.  
Advisor: Prof Sanjeevi Shanmugam. CGPA: 9/10

**Bachelor's in engineering (Geo-Informatics)** 2003 – 2007  
Department of Civil Engineering, Anna University, Chennai, India  
Thesis: Location based services: An open source approach for GIS  
Advisor: Prof Thirumalaiivasan. CGPA: 8.5/10

### **Publications – In progress**

- **Ashokkumar**, Lavanya and Harig, Christopher (2021). Global glacier mass loss rates under CMIP6 climate scenarios. (*In progress*)
- **Ashokkumar**, Lavanya., Harig, Chris and Holt, Jack (2021). Assessing the future mass loss rates from tidewater glaciers in Alaska using laser altimetry. AGU Earth surface. (*In progress*).
- Yuvaraj, Divya., Jayachandran, Krish and **Ashokkumar**, Lavanya (2021). Performance of Sentinel-2A for classification. (*In progress*)

### **Publications**

7. **Ashokkumar**, L., Luckman, A, Harig, C., Kulesa, B, Bevan, S and Greene, C (2021). Contrasting patterns of dynamic response to climate, inferred from 145 glaciers in the Himalayas. *Journal of Glaciology*. (Accepted - in review).
6. **Ashokkumar**, Lavanya and Harig, Christopher (2020). 21st century estimates of mass loss rates from glaciers in the Gulf of Alaska and Canadian Archipelago using a GRACE constrained glacier model. *The Cryosphere*. <https://www.the-cryosphere-discuss.net/tc-2019-325> (revise and submit).
5. **Ashokkumar**, Lavanya (2017). PhD thesis. Recent variability in Himalayan glacier dynamics using remote sensing. Swansea University, UK.
4. **Ashokkumar**, L., & Shanmugam, S. (2014). Hyperspectral band selection and classification of Hyperion image of Bhitarkanika mangrove ecosystem, eastern India. Proceedings Volume 9239, Remote Sensing for Agriculture, Ecosystems, and Hydrology XVI; 923914. <https://doi.org/10.1117/12.2067483>

3. **Lavanya, A., & Sanjeevi, S.** (2013). An improved band selection technique for hyperspectral data using factor analysis. *Journal of the Indian Society of Remote Sensing*, 41(2), 199-211. <http://dx.doi.org/10.1007/s12524-012-0214-7>
2. Suresh Kumar R., **Lavanya A.**, Vani K. and Sanjeevi S. (2012). Fusion based approach for automatic lunar-crater detection. *Acta Futura: Journal of Advanced Concepts*, 5, 163–172. <http://dx.doi.org/10.2420/AF05.2012.163>
1. Tamililakkiya, V, Vani K, **Lavanya A**, Anto M, (2011). Linear and non-linear feature extraction algorithms for lunar images. *Signal & Image Processing*. <http://dx.doi.org/10.5121/sipij.2011.2414>

### **Non-peer reviewed proceedings**

- **Ashokkumar** (2021). Global estimates of sea-level rates from glaciers. Women in Data Science -Tucson, University of Arizona. April 2021. (Oral - Invited).
- **Ashokkumar** (2021). Global estimates of glacier mass balance. Seminar series by the International Glaciological Society. March 2021. (Oral).
- **Ashokkumar**, Luckman, Harig, Kulesa and Bevan (2020). Contrasting response pattern between glacier dynamics and climate in the Himalayas. Northwest Glaciologists Meeting, University of Montana, Oct 2020. (Oral)
- **Ashokkumar** and Harig (2019). Regionally variable mass loss rates in Alaska and Canadian Archipelago under recent climate scenarios. Northwest Glaciologists Meeting, Oregon State University, Oct 2019. (Oral)
- **Ashokkumar** and Harig (2018). Regionally variable mass loss rates in Greenland estimated from GRACE and their link to observed and modelled climate. AGU Fall Meeting, Washington DC, Dec 10 – 14, 2018.
- **Ashokkumar**, Lavanya; Luckman, Adrian and Kulesa, Bernd (2015). Glacier dynamics in the Himalayas over the last four decades using satellite remote sensing. International Symposium on Glaciology in High-Mountain Asia. March 2015. (Oral)
- **Lavanya Ashokkumar**, Adrian Luckman and Bernd Kulesa (2014). Spatial and temporal dynamic change in Karakoram glaciers, IGS British branch meeting, Bristol, 2014.
- **Lavanya Ashokkumar**, Adrian Luckman and Bernd Kulesa (2013). Analysis of glacier velocities across Karakoram Himalayas over the past decade using Landsat 7–8, IGS British branch meeting 2013, Loughborough UK.
- **Lavanya.A**, Sanjeevi.S and Vani. K. (2012). “Dimensionality Reduction of lunar hyperspectral data using Band Index and separability measures”. Proceedings of National Symposium on Signal and Image Processing. Gandhigram Rural University. (Oral)
- **Lavanya, A.**, Sanjeevi, S. and Vani, K. (2011). Hyperspectral Data Mining – A Feature Selection Technique for Mineral Abundance Mapping on the Lunar Surface. AI in Space: Intelligence beyond planet earth, IJCAI 2011, Spain.
- Suresh Kumar, R., **Lavanya, A.**, Vani, K. and Sanjeevi, S. (2011). Texture Based Automatic Lunar-crater Detection and Mapping in Chandrayaan - 1, Image Data. AI in Space; Intelligence beyond planet earth, IJCAI 2011, Spain.
- Lavanya, A., & Suganya, B. (2006). “Hurricane Mapping and Damage Assessment”. 9th International Conference and Exhibition on Geographical Information, Technology and Applications. Map India 2006, India (Oral).
- **Lavanya, A.**, & Suganya, B. (2005). “Rehabilitation of wastelands in a drought prone area using remote sensing”. *AGNI 2005*. Awarded the Best Student paper. Anna University, India. (Oral).

## **Work experience**

**Postdoctoral Research Associate** Mar 2018 – present  
University of Arizona, Tucson AZ  
Modeling the mass balance of glaciers using GRACE satellite gravimetry.

**Postdoctoral Researcher (Visitor status)** June 2017 – Feb 2018  
Department of Geography, College of Science, Swansea University SA2 8P, UK  
Time series analysis of glacier surge mechanism using Sentinel-1 dataset.

**Research Associate** Nov 2012 – May 2017  
Swansea University SA2 8P, UK

**Teaching assistant** Oct 2016 – Dec 2016  
GEG236: The Earth from Space: Monitoring Global Environmental Change  
GEG208: Introduction to Geographic Information Systems  
GEG111: Geographical Writing Skills and Personal Development Planning  
GEG236: Approaches to Physical Geography – Talk about preparing for the undergrad dissertation

**Lecturer** June 2012 – Oct 2012  
Sree Sastha Institute of Engineering and technology, Chennai, India  
Courses taught: Basic civil engineering, engineering mechanics, computer programming and surveying laboratory.

**Junior Research Fellow** 2010 – 2011  
Anna University, Chennai 600025, India

- Worked on the project titled ‘Feature extraction of lunar features using multi-sensor image fusion approaches’, funded by the **Space application centre (ISRO, India)**.
- Major task included algorithm development for image fusion for better spatial interpretability and extraction of lunar features
- Processing of hyperspectral image dataset.

**Maternity break** 2008 - 2009

**Software developer** 2007 –2008  
Cognizant technology solutions, Chennai, India

**GIS Intern** 2006 – 2007  
Red planet consulting, Chennai, India  
Developed a stand-alone mobile application using open source GIS application  
Efficient use of Dijkstra's algorithm to provide shortest path to the nearest hospital

## **Awards and grants**

- Women in Data science – Tucson, University of Arizona. April 2021. Third place.
- Postdoc speed talk competition, University of Arizona. First place. March 2020 (**\$2000**).
- Travel support by NASA and UW (**\$1500**) for ICESat-2 Cryospheric Science Hackweek, University of Washington, Seattle, July 2019.

- Chevening Scholarship for dissertation writing and support – 2015 (**\$10000**)
- **Commonwealth Scholarship and Fellowship** for PhD in Remote sensing, Commonwealth commission at the UK and MHRD, India (2012–2016). Funding for 3.5 years. (**\$20000** annually)
- Travel Grant (**£750**) by the International Glaciological society for the International Glaciological Symposium in High Mountain Asia, Nepal, March 2015.
- Travel Grant for Young Scientist (~ **\$1000**) awarded by the Council of Scientific and Industrial Research (CSIR), Government of India for the Conference 'AI in Space: Intelligence beyond planet earth', Spain, June 2011.
- Master Research funded by Indian space Research organization (ISRO- DOS), PLANEX for the project “Developing tools and techniques for lunar information extraction using multi-sensor image fusion”. (Funding for 1 year).

### **Professional Membership**

Member of Geological Society of America	2020
Member of American Geophysical Union	2018 – present
Member of International Glaciological Society, UK	2013 – 2017
Member of Indian Society of Remote Sensing	2011 - 2012

### **Science outreach, leadership and service**

2020	SARSEF – Judge for Special Science category award for high school category, Tucson - invited ARCUS – Judge for Travel award for indigenous students.
2019 - present	Mentorship co-coordinator of Association of Women Geoscientists, Southern Arizona Chapter. Board member of USAPECS (US Association of Polar Early Career Scientists) Board member of IARPC Early Career group SARSEF – High School category judge in Earth science. Sam Hughes Elementary School – Judge/ organizer for the selection of best science projects.
2012 – 2017	PhD Commonwealth Scholar, Wales regional network member.
2006 – 2008	Member of Geoinformatics Engineer, Anna University.

### **Outreach grants and talk**

- Commission of status of women, 2021 (**\$1406**) – University of Arizona.
- E-zen grant award for outreach activities, 2020 (**\$1500**) – Geological Society of America.
- Presentation, Science talks, active participation and member of Commonwealth Wales Regional Networks, UK (2012 – 2016).
- Talk on ‘Mass balance and glacier velocities in the Himalayas’, College of Science Lecture series, Swansea University. March 2016. (**Oral**)
- Talk on ‘Tracking the dynamic nature of the Himalayan glaciers using Remote sensing’ at Postgraduate Research Conference, Cardiff University, June 2014. (**Oral**)
- Seminar on ‘Recent techniques in remote sensing and GIS’ at B.S. Abdur Rahman Crescent University, Chennai (2012) (**Invited**).