

Kakoli Saha, Ph.D.

Department of Planning, School of Planning and Architecture, Bhopal

Mailing Address: Dept. of Urban & Regional Planning, SPA Bhopal, Neelbad road,
Bhauri, Bhopal, MP, 462030

Ph No: +919685537927

Email: kakolisaha@spabhupal.ac.in

Website: <http://www.spabhupal.ac.in/faculty.aspx/KakoliSaha>

Education

- **Kent State University, Kent, OH, USA (9/2006-12/2010)**
Advisor: Prof. Mandy Munro-Stasiuk
Ph.D. (Geography, Specialization: Applying GIS/Remote Sensing techniques to extract landforms from Digital Elevation Models, GPA: 4.0/4.0).
 - **University of Georgia, Athens, GA, USA (9/2005-5/2006)**
PhD Student (Transferred to Kent State University, GPA: 3.8/4.0)
 - **University of Calcutta, Calcutta, India (7/2001-5/2003)**
M.Sc. (Geography)
 - **Presidency University, Calcutta, India (9/1998-6/2001)**
B.Sc. (Honors: Geography, Specialization: Environmental Geography)
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Professional and Teaching Experience

- **Head, Geoinformatics Centre, SPA Bhopal**
(05/2019- present)
- **Assistant Professor in Urban & Regional Planning**
(14/02/2014- present)
Department of Urban & Regional Planning, School of Planning and Architecture, Bhopal, India.
- **Coordinator, Doctoral Programme**
(31/10/2016- 12/2017)
School of Planning and Architecture, Bhopal, India.
- **Principal Investigator for DST project under Young Scientist Scheme (Ref: SR/FTP/ES-24/2012)**
(09/2012- 09/2015)
Project title-“Optimization of Photovoltaic Solar Panel Installation using Remote Sensing Techniques”.
- **Visiting Faculty**
(08/2012-09/2012)
Department of Planning, School of Planning and Architecture, Bhopal, India.
- **Adjunct Research Professor**
(01/2011 – 07/2012)
Department of Geography, Kent State University, Kent, Ohio, USA
Advisor: Prof. Mandy Munro-Stasiuk
- **PhD Instructor – Undergraduate Courses**

2006 Fall Semester – 2009 Fall Semester

Department of Geography, Kent State University, Kent, Ohio, USA

Instructor of Record: Full course responsibility including lecture and exam preparation, project and grade assignment.

- **Lab Assistant – Remote Sensing of the Environment (Graduate level Course)**
Responsibility included set up the lab, help students to complete labs and final projects, grade assignment.
- **Teaching Assistant – Undergraduate Courses**

2005 Fall Semester – 2006 Spring Semester

Department of Geography, University of Georgia, Athens, Georgia, USA.

Responsibility included preparation for the class, grade assignment.

Invited Lectures in India & Abroad

- 5th November, 2020, expert lecture on "Making cities inclusive a GIS approach" at online Professional Development Programme, SPA Vijaywada, Vijaywada.
 - 14th October 2020, Expert lecture on "Remote Sensing for Smart Cities" at AICTE sponsored online Faculty Development Programme, Indian Institute of Information Technology, Dharwad, Karnataka.
 - 15th May 2018, Guest Speaker via Zoom Geog 390 (Geography of Tourism) Department of Geography, **California State University San Bernardino**, CA, USA: Universal Access Assessment at Religious Tourist Spots of India Using Geospatial Technique.
 - 8th February, 2013, Knowledge Exchange Series, **SPA Bhopal**, Bhopal.Seminar on Research
 - 13th February, 2012, Department of Geography, **Delhi School of Economics, Delhi University**: Application of geospatial techniques to extract geomorphological features-A case study of Drumlins.
 - 10th Sept. 2011, **Presidency University, Kolkata**: An object-oriented approach to automated landform mapping: a case study of drumlins.
 - 1st July, 2011, **Indian Institute of Scientific Education and Research (IISER), Pune**: Application of geospatial techniques- visualization to automated mapping.
 - 21st June, 2011, Centre for Earth Sciences, **Indian Institute of Science, Bangalore**: Application of geospatial techniques- visualization to automated mapping.
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Research Interest and Areas of Expertise

- Application of GIS and Remote Sensing techniques in spatial planning
 - Use of Global Positioning System to locate meso-scale landforms.
 - Quantitative methods in Planning
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Software Skills

- Worked extensively with software like Definiens Developer/eCognition, PCI Geomatica, ArcMap, ArcGIS Tools, ENVI, ERDAS Imagine, Internet GIS (ArcIMS), River Tools, Corel Draw, Adobe Photoshop.
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Research Projects:

- **Impactful Policy Research in Social Science (IMPRESS) Research Project under the Indian Council of Social Science Research (ICSSR). (March 2019- present).**

Designation: Co-Project Director

Project title- 'Revisiting the Frameworks for Performance Assessment of Service Delivery for Urban Sanitation in India.'

Institute: SPA Bhopal, Bhopal, MP, India

- **Design Innovation Centre funded by MHRD, Government of India (2015-present)**

Designation: Member of the core team

Project title- "Universal Design Innovation for Heritage Sites"

Institute: SPA Bhopal, Bhopal, MP, India

- **DST Fast Track project under Young Scientist Scheme(09/2012-09/2015).**

Designation: Principal Investigator

Project title- "Optimization of Photovoltaic Solar Panel Installation using Remote Sensing Techniques"

Institute: SPA Bhopal, Bhopal, MP, India

Consultancy Research Projects:

- **Shyama Prasad Mukherji National Rurban Mission funded by Ministry of Rural Development, Government of India. (10/2016-02/2017).**

Designation: Cluster Coordinator of Ratibad Cluster

Project title- "Preparation of Integrated Cluster Action Plan for Ratibad Cluster, Madhya Pradesh, India"

Institute: SPA Bhopal, Bhopal, MP, India

Consultancy Projects:

- **Preparation of Development Plan for Saugor Cantonment, Saugor, Madhya Pradesh, India. (02/2019- present).**

Designation: Team Member

Project title – "Preparation of Development Plan for Saugor Cantonment"

Institute: SPA Bhopal, Bhopal, MP, India

Training and Workshops Conducted:

- **Awareness workshop on 'GIS and Universal Accessibility.'(9-12th January, 2019).**

Designation:Coordinator

Venue: School of Planning and Architecture, Bhopal.

Sponsoring Agency: Grants approved by Awareness Generation & Publicity Scheme, Department of Empowerment of Persons with Disabilities.

- **Short Term Training Program on 'Geo-Spatial Applications.' (01/07/2019-12/07/2019).**

Designation: Co-coordinator

Venue: School of Planning and Architecture, Bhopal.

- **Short Term Training Program on 'Basic Application of GIS and Remote Sensing in Planning and Architecture.' (02/07/2018-06/07/2018).**

Designation: Co-coordinator

Venue: School of Planning and Architecture, Bhopal.

- **One Day Workshop on ‘Redevelopment and Retrofitting Proposal Using Geospatial Analysis.’ Held on 27/01/2017**

Designation: Coordinator

Venue: School of Planning and Architecture, Bhopal.

- **IV GIAN (Global Initiative of Academic Network) course on ‘Institutions, Economic Development and Industrial Upgrading.’ (14/12/2016-18/12/2016).**

Designation: Coordinator

Venue: School of Planning and Architecture, Bhopal.

Research Articles:

1. **Saha, K.**, & Van Landeghem, K. 2021. Evaluating an automated object-oriented method to delineate drumlins from both terrestrial and submarine digital elevation models. In *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, V.3,pp. 29-35.
2. Saha, K., Kalra, R. & Khare, R. 2020. A geospatial approach to enhance religious tourism in India—A case of Ujjain city, Madhya Pradesh. *GeoJournal*. <https://doi.org/10.1007/s10708-020-10334-w>.
3. Garg, A., **Saha, K.** 2019. Resilient Agricultural Practices: A Case Study of Ujjain District, Madhya Pradesh, India. *Indian Journal of Spatial Science*, Vol-10 No. 2, Autumn Issue pp. 52-58. ISSN: 2249 - 3921.
4. **Saha, K.**, Mandal, N. R., Khare, R. 2018. Universal Access Assessment at Religious Tourist Spots of India Using Geospatial Technique. In *Proceedings of 12th World Congress of the Regional Science Association International (RSAI) 2018*, Goa, India, May 29- June 1, pp. 483-493. ISBN 978-989-54216-0-2.
5. **Saha, K** & Mandal, N. R. 2018. Mobility Planning for an Indian Pilgrimage City- A Case of Ujjain City, Madhya Pradesh, India (Poster paper). In *Proceedings of 12th World Congress of the Regional Science Association International (RSAI) 2018*, Goa, India, May 29- June 1, pp. 15-20. ISBN 978-989-54216-0-2.
6. Mandal, N. R. & **Saha, K.** 2018. A Pathway To Deliver Healthy Cities In India- A Case Of Ujjain City, Madhya Pradesh, India. In *Proceedings of 12th World Congress of the Regional Science Association International (RSAI) 2018*, Goa, India, May 29- June 1, pp. 377-384. ISBN 978-989-54216-0-2.
7. Tiwari, S., Mandal, N. R., **Saha, K.** 2018. Monitoring Impact Of Land Use & Land Cover Change In Livelihood Zones Along The Narmada River Riparian Buffer Zone, Madhya Pradesh, India. In *Proceedings of 12th World Congress of the Regional Science Association International (RSAI) 2018*, Goa, India, May 29- June 1, pp. 964-973. ISBN 978-989-54216-0-2.
8. **Saha, K.** 2017. "Smart Solutions" for a Smart City: a GIS Approach. In *Proceedings of the 10th International Conference on Theory and Practice of Electronic Governance (ICEGOV '17)*, Rehema Baguma, Rahul De', and Tomasz Janowski (Eds.). ACM, New York, NY, USA, 534-535. DOI: <https://doi.org/10.1145/3047273.3047395>

9. **Saha, K.** 2017. A Remote Sensing Approach to Smart City Development in India: Case of Bhopal City, Madhya Pradesh. In *Proceedings of the Special Collection on eGovernment Innovations in India (ICEGOV '17)*, Rehema Baguma, Rahul De, Tomasz Janowski, and Morten Meyerhoff Nielsen (Eds.). ACM, New York, NY, USA, 70-75. DOI: <https://doi.org/10.1145/3055219.3055232>
10. **Saha, K.** Nanda, G. 2017. Incorporating GIS in Architectural Pedagogy. In *Proceedings of 17th Esri India User Conference 2017*, New Delhi, India, January 19-20, pp.1-10.
11. **Saha, K.** 2016. An object-oriented approach to quantify available roof area for solar PV installation: Case of Bhopal City, Madhya Pradesh, India. *Journal of Geomatics*, Vol-10, No. 2 pp 133- 139.
12. **Saha, K.** & Mandal, N. R. 2016. Estimating Solar PV Potential for Sustainable Energy Planning in Tier-II Cities of India: Case of Bhopal City. *Current Urban Studies*, 4, 356-375. DOI:10.4236/cus.2016.43024.
13. **Saha, K.** 2015. Review of Article “Hotspots of Solar Potential in India” by T.V. Ramachandra, Rishabh Jain, Gautham Krishnada in *Renewable and Sustainable Energy Reviews* 15 (2011)3178-3186. *Spandrel*, Issue 9 pp.99.
14. **Saha, K.** 2014. DSM extraction and evaluation from Cartosat-1 stereo data for Bhopal city, Madhya Pradesh. *International Journal of Scientific and Research Publication*, Vol-4, Issue 5 pp. 1-5.
15. **Saha, K.** 2014. Generation of DSMs and Orthoimages from CARTOSAT- 1 Stereo Imagery- a case study of Bhopal, India. *Indian Journal of Spatial Science*, Vol-5 No. 1, Summer Issue pp. 56-61.
16. **Saha, K.** Munro-Stasiuk, M. 2013. Automated mapping of drumlin orientation using object-oriented approach. *Indian Journal of Spatial Science*, Vol - 4, No. - 2, Winter Issue, pp 1 – 12.
17. **Saha, K.** 2012. Testing an Object-Oriented method to map mid-scale glaciated landform like drumlins. *eTraverse*. Vol. III, No.1, 1-6.
18. **Saha, K.***, Wells, N. A. and Munro-Stasiuk, M. 2011. An object-oriented approach to automated landform mapping: a case study of drumlins. *Computer and Geosciences* 37, 1324-1336. (***Corresponding Author**)
19. **Saha, K.**, Munro-Stasiuk, M. 2009. Automated extraction of drumlins from Digital Elevation Models through object-oriented classification. In *Proceedings of the American Society for Photogrammetry and Remote Sensing Annual Conference (ASPRS'09)* (pp. 1-10).
20. **Saha, K.** 2009. Semi-automated to automated – refined method for mid-scale glacial landform mapping. In *Proceedings of the Applied Geography Conferences*. Vol 32: 362-371.
21. **Saha, K.**, Munro-Stasiuk, M. 2008. Object-oriented image analysis of the Chautauqua drumlin field. In *Proceedings of the Applied Geography Conferences*. Vol 31: 43-51.

Book Chapter:

Saha K., Khare R. 2020. A Geospatial Approach to Conserving Cultural Heritage Tourism at Kumbh Mela Events in India. In: Wise N., Jimura T. (eds) *Tourism, Cultural*

Heritage and Urban Regeneration. The Urban Book Series. Springer, Cham., pp. 125-140. doi.org/10.1007/978-3-030-41905-9_9.

Book:

Kakoli Saha, Yngve K. Frøyen(2021). GIS using open source software- An applied guide for geo-spatial analysis. Published by Routeledge India (In press).

Book Review:

Saha, K. Review of *Planning and installing photovoltaic system: a guide for installers, architects and engineers*, by Deutsche Gesellschaft für Sonnenenergie (DGS), *International Journal of Environmental Studies*, 11/ 2014; 71(6).pp. 887-898 DOI: 10.1080/00207233.2014.951543

Project Report

Saha, K., 2017. Optimization of Photovoltaic Solar Panel Installation Using Remote Sensing Techniques. *Spandrel*, Issue 9 pp.130-133.

Technical Report

Mandal, N.R., **Saha, K.**, Manisha, K., 2017. Integrated Cluster Action Plan (ICAP) of Ratibad Cluster, Bhopal District, Madhya Pradesh. School of Planning and Architecture, Bhopal for Dept. of Employment and Rural Development, Government of Madhya Pradesh and Ministry of Rural Development, Government of India. pp. 274.

Professional Presentations

- Evaluating an automated object-oriented method to delineate drumlins from both terrestrial and submarine digital elevation models. XXIV ISPRS Congress (2021 edition), 5-9th July, 2021, Nice, France (Paper Presentation).
- A Geospatial Approach to Organize Religious Tourism in India. Virtual Annual Meeting of the American Association of Geographers, 9th April,2020 (Paper presentation).
- Resilient Agricultural Practices- A case of Ujjain District, Madhya Pradesh, India. 4th World Congress on Disaster Management (WCDM-2019), 29th Jan to 1st Feb., Mumbai, Maharashtra, India (Paper Presentation).
- Safeguarding People with Disability at Kumbh Mela (the festival of the Sacred Pitcher). 4th World Congress on Disaster Management (WCDM-2019), 29th Jan to 1st Feb., Mumbai, Maharashtra, India (Paper Presentation).
- Universal Access Assessment at Religious Tourist Spots of India Using Geospatial Technique. 12th World Congress of RSAI, May 29 - June 1, 2018, Goa, India (Paper Presentation).
- Mobility Planning for an Indian Pilgrimage City- A Case of Ujjain City, Madhya Pradesh, India. 12th World Congress of RSAI, May 29 - June 1, 2018, Goa, India (Poster Presentation).

- Estimating Roof Top Solar PV Potential of Bhopal City Using Remote Sensing Technique. National Seminar on Climate Change, 22-24th March, 2018, The Environmental Planning & Coordination Organisation (EPCO), Dept. of Environment, Govt. of Madhya Pradesh, Bhopal, India (Paper Presentation).
- An automated object-oriented approach to facilitate core infrastructure of a Smart City: a comparative study between Bhopal, India and Trondheim, Norway. 38th Asian Conference on Remote Sensing (ACRS 2017), 23-27 October, New Delhi, India (Paper Presentation).
- "Smart Solutions" for a Smart City: a GIS Approach. 10th International Conference on Theory and Practice of Electronic Governance (ICEGOV2017), 7th-9th March, New Delhi, India (Poster Presentation).
- Incorporating GIS in Architectural Pedagogy. 17th Esri India User Conference 2017, January 19-20, New Delhi, India (Paper Presentation).
- An object-oriented approach for building a smart city: case study of Bhopal, Madhya Pradesh. 2nd Smart Cities India 2016 expo, exhibition and conference. 11-13 May 2016, Pragati Maidan, New Delhi (Poster Presentation).
- Automated Extraction of rooftop for estimating Photovoltaic Energy Potential: Case of Bhopal City, Madhya Pradesh, India. National Symposium on Geomatics for Digital India, December 16-18, 2015, Jaipur, Rajasthan.
- Using GIS as a tool to develop green infrastructure. Sensitization Programme on Sustainable Urban Habitat, Theme: Green Infrastructure, School of Planning and Architecture, Bhopal, 9-14th March, 2015.
- Optimization of Solar Panel Installation Using Remote Sensing Techniques. Renewable Energy and Sustainable Habitat Conference, School of Planning and Architecture Delhi, 29th January, 2014. (Paper Presentation).
- Assessing Solar Energy Potential for Green City using Geoinformatics. Workshop on Awareness in Green Buildings Responsible Education in Schools (AGBRES 2014), Climate Change Research Institute, India and IIC, Delhi. 31st January, 2014. (Paper Presentation).
- Advantages of automated method for mapping landforms in a larger study area. 26th Annual Graduate Student Colloquium, Kent State University, Kent, OH, 2011. (Poster Presentation).
- Application of Definiens Developer for Mid-scale glacial landform extraction, Applied Geography Conference (AGC), Fort Worth, Texas, 2010. (Poster Presentation).
- Geomorphological mapping using object-based analysis. 25th Annual Graduate Student Colloquium, Kent State University, Kent, OH, 2010. (Poster Presentation).
- Semi-automated to automated – refined method for mid-scale glacial landform mapping, Applied Geography Conference (AGC), Baton Rouge, LA, 2009. (Paper Presentation).
- Visualizing and objectifying drumlins of the Chautauqua Drumlin Field, USA, 24th Annual Graduate Student Senate Colloquium, Kent State University, Kent, OH, 2009. (Paper Presentation).
- Morphology and morphometric analysis of drumlins through an object-oriented approach, VII Drumlin Symposium, Westport, Ireland, 2009. (Poster Presentation).

- Automated extraction of drumlins from digital elevation models through object-oriented classification, ASPRS 2009 Annual Conference, Baltimore, MD, 2009. (Paper Presentation).
 - Object-oriented image analysis of the Chautauqua drumlin field, Applied Geography Conference (AGC), Wilmington, DE, 2008. (Paper Presentation).
 - Comparative Study between drumlins manually extracted from topographic maps and object-oriented classification from DEMs, Annual Meeting of American Association of Geographers (AAG), Boston, MA, 2008. (Paper Presentation).
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Honors and Awards

- Award of Erasmus Scholarship to visit Dept. of Urban Design and Planning, NTNU, Norway under the framework of Erasmus Plus Global Mobility Programme, 2016.
 - First Prize for Best Paper Presentation under Scientist Category during ISG-ISRS National Symposium on Geomatics for Digital India. 16-18th December, 2015, Jaipur, India.
 - Outstanding Academic Achievement Award for 4.0 GPA, Kent State University and Phi Beta Delta, the Honor Society for International Scholars, 2008- 2010.
 - First Place Presentation Award for the Geography Awareness Day Poster Competition, Kent State University, 2009.
 - First prize won at the poster competition, Applied Geography Conference, Baton Rouge, 2009.
 - University Fellowship Award, 2009-2010, Kent State University.
 - Beck Research Award for graduate research and paper presentation, Department of Geography, Kent State University, 2009.
 - Award of Excellence for outstanding presentation and content for the Student Poster Presentation and Contest, University Research Council, Kent State University, 2009.
 - Travel Grant from Graduate Student Senate, Kent State University for Annual Meeting of Applied Geography, Delaware, October 2008.
 - First Place Presentation Award for the Geography Awareness Day Poster Competition, Kent State University, 2008.
 - Travel Grant from Graduate Student Senate, Kent State University for Annual Meeting of American Association of Geographers (AAG), Boston, March 2008.
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Professional Societies

- Life member of Indian Society of Remote Sensing.
 - Life member of Indian Society of Geomatics.
 - Life member of International Society of Photogrammetry and Remote Sensing.
 - Member of International Society of City and Regional Planners.
 - Member of Regional Studies Association.
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Service

- Reviewer for the *Current Science Bangalore*.
- Co-Issue Editor, *Spandrel* –A bi-annual journal published by School of Planning and Architecture Issue 12- Monsoon 2016-17.

- Reviewer for the *International Journal of Applied Geospatial Research* in 2011.
 - Reviewer for the journal *Papers of Applied Geography Conferences* in 2010.
 - Represented geography department at Graduate Student Senate, Kent State University.
 - Helped to develop and write course book for GEOG 29160: Mapping our World.
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References

Prof. Yngve K. Frøyen

Department of Architecture and Planning
Faculty of Architecture and Design
The Norwegian University of
Technology and Science – NTNU
7491 Trondheim - Norway
Ph. No: (47) 900 28 185
Email: yngve.froyen@ntnu.no

Prof. Scott Sheridan

Professor
Kent State University
Department of Geography
413 McGilvrey Hall
Kent, OH, 44242
Ph. No: (330) 672-3224
Email: ssherid1@kent.edu

Prof. Mandy Munro-Stasiuk (PhD Advisor)

Professor and Chair
Kent State University
Department of Geography
413 McGilvrey Hall
Kent, OH, 44242
Ph. No: (330) 672-3225
Email: mmunrost@kent.edu

Prof. Marguerite Madden

Professor and Director
Center for Remote Sensing and Mapping
Science
Department of Geography
University of Georgia
Athens, GA 30602
Ph No: (706) 542-2379
Email: mmadden@uga.edu
