ADEEL AHMAD, Ph.D.

Geospatial Researcher

(+92) 42-99230419 | adeel.geog@pu.edu.pk | Lahore, Pakistan
LinkedIn | Personal Website | Google Scholar | YouTube Channel

CAREER SUMMARY

Geospatial Researcher with a Ph.D. in Geomatics and 13+ years of academic, research, and industry experience in applying geospatial technologies to environmental and urban challenges. Specialized in satellite image analysis, land cover change, and spatial modeling, with a strong record of leading projects on climate resilience, urban expansion, and landscape degradation. Proven expertise in Google Earth Engine, Python, R, and AI-based remote sensing for large-scale environmental assessments. Extensive experience working with high-resolution EO data (Sentinel, Landsat, UAV, LiDAR) and integrating socio-environmental datasets for spatial decision-making. Published extensively in peer-reviewed journals and contributed to projects supporting sustainable planning and risk reduction. Passionate about advancing geospatial science to address climate and environmental vulnerabilities, particularly in arid and rapidly urbanizing regions.

CORE COMPETENCIES

Multisource/Multimodal Satellite Imagery Classification and Analysis | Spatial Data Fusion | Land Use/Land Cover Mapping | Landscape Metrics & Spatial Pattern Analysis | GIS-Based Suitability Modeling | Urban Environmental Modeling | Deep Learning for Earth Observation (EO) Data | Google Earth Engine (GEE) | Python & R for Geospatial Analytics | Web GIS Dashboards | Cartographic Visualization | Research Writing & Publication | Technical Reporting | Scientific Literature Review | Conference Presentations

ACADEMIC APPOINTMENTS

ASSISTANT PROFESSOR | Institute of Geography, University of the Punjab | Lahore, Pakistan Jan 2025 – Present

In this role, I continued to assume responsibilities such as student advisor, departmental controller of examinations, and member of the board of studies, in addition to supervising master's and doctoral students.

- Served as the Summer School Coordinator for Summer School (June-July) 2025, titled "From Data to Decisions," organized at the Institute, where I led the planning, academic coordination, speaker engagement, and execution of a two-week national-level training on cloud computing, geospatial AI, and climate change impact assessment.

POSTDOC FELLOW | Taylor Geospatial Institute (TGI), Washington University | St. Louis, United States Jan 2023 – Jan 2025

As a Postdoctoral Fellow at TGI, I advanced research in geospatial data science with a focus on remote sensing and AI-based environmental monitoring.

- I led projects involving satellite imagery analysis, deep learning for canopy height estimation, and large-scale geospatial data integration.
- My work supported scalable solutions for sustainable land management and contributed to opening geospatial datasets for global scientific use.
- I was part of the Taylor Geospatial Engine's (TGE) Innovation Bridge 2024 initiative to build a global agricultural field-boundary dataset using AI and satellite imagery, resulting in the co-development of the Fields of the World (FTW) state-of-the-art benchmark dataset covering over 1.6 million field parcels across 24 countries.
- Co-authored the Best Paper Award-winning paper "Sat2Cap: Mapping Fine-Grained Text Descriptions from Satellite Images" presented at the CVPRW EarthVision Workshop.

LECTURER | Department of Geography, University of the Punjab | Lahore, Pakistan Sep 2018 – Jun 2022

I taught undergraduate and master's classes related to Geographic Thought, Fundamentals of Geography, GIS, Remote Sensing, Cartography, and Computer Mapping (Theory and Practical). I have served as an internal and external examiner for different subjects in the university departments and have been involved in various research projects with colleagues and students, focusing on applied geospatial techniques for earth resource assessment. These include land use/land cover dynamics, soil erosion modeling, temporal surface water change, and studies on the drivers, factors, and impacts of urbanization. Along with teaching activities, I had the following responsibilities:

- Student Advisor: Providing guidance and assistance to students by planning schedules, recommending readings/ solutions, and determining suitable educational solutions for diverse types of students. Facilitating the organization of different curricular and extracurricular events at the Department, including sports weeks, seminars, guest lectures, and field trips.
- Departmental Controller of Examination: Supervise all matters concerning examinations, including preparing and displaying results notifications for all department programs.
- Member of Board of Studies: Aiding curriculum preparation, upgradation, and approval for the faculty of sciences under the head of department and the dean's supervision.

- Departmental Focal Person for Career Counseling and Placement: Aiding students in building future educational or career paths by evaluating their interests and tendencies.
- Conference Secretary: Organized 16th All Pakistan Geographical Conference (APGC) from 11th – 13th March 2021.

VISITING LECTURER | College of Earth and Environmental Sciences (CEES), University of the Punjab | Lahore, Pakistan Sep 2015 – Jun 2016

I taught two courses: one to undergraduate environmental sciences students on the subject of "GIS & RS" and one to graduate (M.Phil.) Geomatics students on the subject of "Environmental Modeling & Spatial Simulation." Major topics that I taught include "Multicriteria Analysis for Site Suitability," "Criteria Weighing using AHP technique," "Service Area analysis," "Watershed Analysis and Modeling," and "Android-based GIS mobile data collection."

LECTURER | Department of Geography, Forman Christian College (A Chartered University) | Lahore, Pakistan Aug 2014 – Sep 2018

I developed a syllabus of Geospatial concentration subjects in the geography stream and overall course structure and administered all grades. I also worked as an advisor to the Dean Geographical Student Society (DGS), managed and supervised significant events, seminars, and open houses, introduced upgraded class activities to enhance learning, and completed various learning and development courses at and outside the university, linking academic activities and students to industries through field trips.

RESEARCH ASSOCIATE | Institute of Geology, University of the Punjab | Lahore, Pakistan Aug 2012 – Jul 2013

I took practical GIS labs for master's Geomatics and Undergraduate Geology classes, worked on different research articles, assisted students regarding GIS mapping, and managed geospatial data in the Geomatics lab.

LECTURER | Department of Geography, University of the Punjab | Lahore, Pakistan Feb 2011 – Mar 2012

I taught techniques in GIS/ RS (Practical), Fundamentals of GIS, Principles of Remote Sensing, Surveying, Map Reading & Interpretation, and Global Positioning System (GPS) to undergraduate and master's classes, organized national events on disaster management and arranged field trips of students.

RESEARCH SUPERVISION/ MENTORSHIP

PH.D.

- Ayesha Riaz, University of the Punjab, Pakistan, Dissertation: "Geographical Assessment of Landscape Fragmentation and Biodiversity in the Hindu Kush Himalaya Region", 2025–Present (Supervisor)
- Sadaf Safdar, University of the Punjab, Dissertation: "Assessment of Forest Biodiversity under Climate Change Scenario in Khyber Pakhtunkhwa, Pakistan", 2022–Present (Supervisor)

M.S./ M.PHIL.

- Syeda Sadia Bano, University of the Punjab, Pakistan, Dissertation: "Spatiotemporal Assessment of Urban Dry/ Wet Island Effect in Lahore (2000-2025)", 2025-Present (Supervisor)
- Haris Naveed, Washington University in St. Louis, USA, Dissertation: "Fusing GEDI and Sentinel-2 Imagery to Estimate Tree Canopy Heights", 2023-2024 (Co-Mentor)
- Aneeq ur Rehman, University of the Punjab, Pakistan, Dissertation: "Selection of Disposal Waste Site using Multi-Criteria Decision Making Analysis and GIS in Dera Ghazi Khan District, Pakistan", 2019-2020 (Co-Supervisor)

B.S.

- Baseer Ahmed, Forman Christian College University, Pakistan, Dissertation: "Assessing Groundwater Depletion in Quetta Valley using GIS Analysis and Its Impacts on local Residents", 2017-2018 (Supervisor)
- Nouman Afzal, Forman Christian College University, Pakistan, Dissertation: "GIS-based Landslide Susceptibility Mapping using AHP, A Case Study of Astore Region, Northern Area of Pakistan", 2017-2018 (Supervisor)
- Shah Rukh Khan, Forman Christian College University, Pakistan, Dissertation: "Impact Assessment of CPEC on the Urbanization using Geospatial Data and Techniques (A Case Study of Gwadar District)", 2016-2017 (Supervisor)

INDUSTRY APPOINTMENTS

GIS ANALYST | MM Pakistan Private Limited | Lahore, Pakistan Aug 2013 – Aug 2014

I worked on various national and international projects. Key contributions involved the development of an Irrigation network, Landuse/ Landcover (LULC) mapping, resettlement plans and maps, drainage mapping, locational maps, EIA maps, irrigation mapping, watershed mapping and modeling, and road and railway mapping using ArcGIS for mapping and ERDAS Imagine for image classification. I contributed to the following projects:

- Monitoring & Evaluation of Punjab Agriculture Productivity Improvement Project (PIPIP) | Donor Agency: **World Bank** [Info]
- Planning and Preparation of Detailed Design and PC-1 of 7 Medium Dams in Kirthar Mountains in Kohistan Region Sindh | Donor Agency: **World Bank and Irrigation and Power Department**, Government of Sindh, Pakistan
- Feasibility Study for Rehabilitation & Modernization of Guddu Barrage – Assignment A | Donor Agency: **World Bank** [Info]
- Planning, Design, and Project Management Consultancy Services for Zarkon Hills Project | Donor Agency: **Zarkon International (Pvt) Ltd.**
- Consultancy Services for Feasibility Studies, PC-1, Tender Documents, Procurement of Plant and Construction Supervision of 50 MW Imported Thermal Power Projects on EPC Basis at Industrial Estates (i) Sunder Lahore (ii) M-3 Industrial City Faisalabad | Donor Agency: **Punjab Power Development Company Limited (PPDCL)**, Pakistan [Info]
- Construction Supervision of Kurram Tangi Dam | Donor Agency: **World Bank and WAPDA**, Pakistan [Info]
- Preparing Irrigation Master Plan for SATPARA Dam Command Area Projects | Donor Agency: **Asian Development Bank (ADB) and Agha Khan Foundation**, Pakistan [Info]
- Punjab Barrages Improvement Project Phase 2 (PBIP - II) | Donor Agency: **World Bank** [Info]
- Sediment Management Study of Tarbela Reservoir | Donor Agency: **World Bank and WAPDA**, Pakistan [Info]
- Solid Waste Management Studies of Towns of Central Cluster of Province of Sindh under Sindh Cities Improvement Program Phase - 04 (SCIP-IV) | Donor Agency: **Asian Development Bank (ADB) and Brisbane City Enterprises Pvt. Ltd**. [Info]
- District-wise Socio-Economic ATLAS Development of Balochistan Province, Pakistan | Donor Agency: **UNICEF**

GIS ASSOCIATE | Eycon Private Limited | Islamabad, Pakistan Nov 2010 – Feb 2011

I participated in developing over 1600 small- and large-scale cartographic maps, handling all stages from data collection and georeferencing to spatial analysis (e.g., proximity, overlay, feature extraction) and final map production.

GIS RESOURCE PERSON | Grass-Root Human Deployment Organization (GODH) | Lahore, Pakistan Sep 2010 – Nov 2010

My responsibilities were to develop a wall-sized botanical herbal distribution map of the Punjab district (Urdu—Labeled) through primary data collection.

GIS INTERN | Directorate General of Mines & Minerals, Government of Punjab (GoP) | Lahore, Pakistan Feb 2010 – Mar 2010

My responsibilities included developing spatial data of various geological sheets for the regions of Jhelum and Rawalpindi through digitization, incorporating the snapping and tracing environment in ArcGIS v.9.3 software. The initial task was to geo-reference the geological sheets through absolute and relative Georeferencing techniques, while coordinates were converted using the coordinate converter tool in ERDAS Imagine v.9.1 software.

TALKS, PRESENTATIONS, AND WORKSHOPS CONDUCTED

- *Tree Canopy Height Mapping in GEE* (Invited Talk), Summer School 2025 at the Institute of Geography, University of the Punjab, Lahore, Pakistan, Jul 2025 [Link]
- *GeoAI* (Invited Talk), Department of Geography/ Dean Geographical Society (DGS), Forman Christian College (A Chartered University), Lahore, Pakistan, May 2025 [Link]
- *A Deep Learning Approach for Predicting Canopy Height using GEDI and Sentinel-2 in the Western Himalayan Mountainscape* (Poster Presentation), 1st Town Hall Event, Taylor Geospatial Institute, St. Louis (Missouri), USA, May 2024 [Link]
- *Canopy Vertical Structural Diversity Mapping in Varied Topographies incorporating Multi-Source and Topography Datasets in Deep Learning Techniques* (Oral Presentation), American Geophysical Union (AGU), Washington DC, USA, December 2024 [Link]
- *Harnessing the Power of Deep Learning for Geospatial Discovery* (Online Talk), "Geospatial Technologies: A Key to Transform our World through Spatial Analysis for Better Understanding" by Department of Geography/ Dean Geographical Society (DGS), Forman Christian College (A Chartered University), Online, December 2023 [Link]
- *Multi-Source Remote Sensing for Tree Height Modeling* (Lightening Talk), "TGI Research Day" by Taylor Geospatial Institute, St. Louis, USA, April 2023 [Link]
- *National/ International Training on Environmental and Climate Change Analysis using Google Earth Engine [Online]* (Moderator), Geo-Spatial Works, Lahore, Pakistan, Jan 2021 & Dec 2020 [Link]
- *1st Anniversary of Course on Big Geospatial Data Analysis using Google Earth Engine* (Moderator), Geo-Spatial Works, Lahore, Pakistan, Jul 2019 [Link]
- *Applications of Remote Sensing in Geography* (Workshop Instructor), Department of Geography, Kinnaird College for Women University, Lahore, Pakistan, Nov 2018
- *Big Geospatial Data Analysis using Google Earth Engine* (Moderator), Geo-Spatial Works, Lahore, Pakistan, Jul 2018 [Link]

- *Capacity Building Workshop on GPS, GIS, and Watershed Modeling Techniques* (Training Instructor), Water Management Training Institute (WMTI), Government of Punjab, Lahore, Pakistan, May 2017 & Jan 2018
- *Pre-Conference GIS Training Workshop, Emerging Trends in Earth and Environmental Sciences (ETEES) Conference* (Training Instructor), College of Earth and Environmental Sciences (CEES), University of the Punjab, Lahore, Pakistan, Mar 2017 [Link]
- *Training Workshop on Humanitarian Mapping for Disaster Response* (Mapping Co-Trainer), Kinnaird College for Women University (KCWU) and Forman Christian College University (FCCU), Lahore, Pakistan, Nov 2015
- *Multiple One-Month GIS Short Training Courses* (Instructor), University of the Punjab, Lahore, Pakistan, Feb 2011 – Aug 2016

CERTIFICATIONS

The Pytorch basics you need to start your ML projects Jun 2023
Coursera Project Network (Coursera Verified)

Exploratory Data Analysis for Machine Learning May 2023
IBM (Coursera Verified)

Aerial Image Segmentation with PyTorch Apr 2023
Coursera Project Network (Coursera Verified)

Programming for Everybody (Getting Started with Python) Feb 2023
University of Michigan (Coursera Verified)

AI for Everyone Feb 2023
DeepLearning.AI (Coursera Verified)

Cartography Jun 2018
ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI) – MOOC

Introduction to Global Precipitation Measurement (GPM) Data and Applications Mar 2015
NASA – APPLIED REMOTE SENSING TRAINING (ARSET)

GEE APPS DEVELOPED

- Evaluating mangrove conservation and sustainability through spatiotemporal (1990–2020) mangrove cover change analysis in Pakistan App Link
- Impact assessment of land cover and land use changes on soil erosion changes (2005–2015) in Pakistan App Link

EDUCATION

DOCTORAL DEGREE | PhD in Geomatics | University of the Punjab, Lahore, Pakistan 2014 – 2021
Dissertation: Spatial Resource Assessment of Forests in Azad Jammu and Kashmir, Pakistan using Optical Remote Sensing

MASTER'S DEGREE | MPhil in Geomatics | University of the Punjab, Lahore, Pakistan 2011 – 2013
Dissertation: Spatial Resource Assessment of Forests in Azad Jammu and Kashmir, Pakistan using Optical Remote Sensing

BACHELOR'S DEGREE | BS in Geography | University of the Punjab, Lahore, Pakistan 2006 – 2010
Areas of concentration: Physical Geography, Digital Cartography, GIS & Remote Sensing

AWARDS

1st Position Holder Certificate, MPhil in Geomatics (CGPA: 3.87/ 4.00) 2014
University Gold-Medalist, BS in Geography (CGPA: 3.88/ 4.00) 2012
Merit Scholarships, MPhil in Geomatics 2011 – 2013
Merit Scholarships, BS in Geography 2007 – 2010

PUBLICATIONS

Journal Article | Conference Paper | Book Chapter | Poster Presentation | Conference Presentation | Magazine Article | Preprint

Dhakal, A., Sastry, S., Khanal, S., **Ahmad, A.**, Xing, E., & Jacobs, N. (2025). RANGE: Retrieval Augmented Neural Fields for Multi-Resolution Geo-Embeddings. In Proceedings of the Computer Vision and Pattern Recognition Conference (pp. 24680-24689). [Link]

- Kerner, H., Chaudhari, S., Ghosh, A., Robinson, C., **Ahmad, A.**, Choi, E., Jacobs, N., Holmes, C., Mohr, M., Dodhia, R., Ferres, J. M. L., & Marcus, J. (**2025**, April). Fields of The World: A machine learning benchmark dataset for global agricultural field boundary segmentation. In Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 39, No. 27, pp. 28151-28159). [Link]
- Favarão Leão, A. L., Banda, B., Xing, E., Gudapati, S., **Ahmad, A.**, Lin, J., Sastry, S., Jacobs, N., & Siqueira Reis, R. (**2025**). Applications of artificial intelligence in public health: analyzing the built environment and addressing spatial inequities. Journal of Public Health, 1-11. [Link]
- Sastry, S., Khanal, S., Dhakal, A., **Ahmad, A.**, & Jacobs, N. (**2025**, February). Taxabind: A unified embedding space for ecological applications. In 2025 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) (pp. 1765-1774). IEEE. [Link]
- **Ahmad, A.**, Ahmad, S. R., Gilani, H., & Nowosad, J. (**2025**). Assessment of forest fragmentation and ecological dynamics in Western Himalayan Region over three decades (1990–2020). Environmental Monitoring and Assessment, 197(2), 205. [Link]
- Safdar, S., Younes, I., **Ahmad, A.**, & Sastry, S. (**2025**). A comprehensive review of spatial distribution modeling of plant species in mountainous environments: Implications for biodiversity conservation and climate change assessment. Kuwait Journal of Science, 52(1), 100337. [Link]
- Khanal, S., Xing, E., Sastry, S., Dhakal, A., Xiong, Z., **Ahmad, A.**, & Jacobs, N. (**2024**, October). PSM: learning probabilistic embeddings for multi-scale zero-shot soundscape mapping. In Proceedings of the 32nd ACM International Conference on Multimedia (pp. 1361-1369). [Link]
- **Ahmad, A.**, Dhakal, A., Sastry, S., Khanal, S., Xing, E., & Jacobs, N. (**2024**, December). Improved Canopy Vertical Structural Diversity Mapping Across Varied Topographies Using Deep Learning Techniques. In AGU Fall Meeting Abstracts (Vol. 2024, pp. B52B-07). [Link]
- Sastry, S., **Ahmad, A.**, Dhakal, A., Khanal, S., Xing, E., & Jacobs, N. (**2024**, December). ClimSatDiff: Synthesizing the Earth's Surface Conditioned on Climatic Variables using Diffusion Models. In AGU Fall Meeting Abstracts (Vol. 2024, pp. GC01-61). [Link]
- Kerner, H., Chaudhari, S., Ghosh, A., Robinson, C., **Ahmad, A.**, Choi, E., Jacobs, N., Holmes, C., Mohr, M., Dodhia, R., Ferres, J. M. L., & Marcus, J. (**2024**, December). Fields of The World (FTW!): A New Machine Learning Dataset for Agricultural Field Boundary Segmentation on Four Continents. In AGU Fall Meeting Abstracts (Vol. 2024, pp. B52C-03). [Link]
- Fatima, M., **Ahmad, A.**, Butt, I., Arshad, S., & Kiani, B. (2024). Geospatial modelling of ambient air pollutants and chronic obstructive pulmonary diseases at regional scale in Pakistan. Environmental Monitoring and Assessment, 196(10), 929. [Link]
- Rehman, A. U., **Ahmad, A.**, Sadef, Y., & Ahmad, S. R. (**2024**). Spatial Evaluation of Waste Disposal Site Selection Using GIS-Based Multi-Criteria Analysis: A Case Study of Dera Ghazi Khan District, Pakistan. Indonesian Journal of Geography, 56(2), 242-253. [Link]
- Dhakal, A., Khanal, S., Sastry, S., **Ahmad, A.**, & Jacobs, N. (**2024**). GEOBIND: Binding Text, Image, and Audio through Satellite Images. International Geoscience and Remote Sensing Symposium (IGARSS). [Link]
- Raza, D., Khushi, M., SHU, H., Aslam, H., Saleem, M. S., **Ahmad, A.**, Mirza, S., & Khan, S. U. (**2024**). CA-ANN based LULC prediction and influence assessment on LST-NDVI using multi-temporal satellite images. Environmental Earth Sciences, 83(5), 144. [Link]
- Dhakal, A., **Ahmad, A.**, Khanal, S., Sastry, S., Kerner, H., & Jacobs, N. (**2024**). Sat2cap: Mapping fine- grained textual descriptions from satellite images. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (pp. 533-542). [Link]
- Khushi, M., Raza, D., Kamran, M., Nazeer, M., **Ahmad, A.**, Khan, S. U., & Younas, I. (**2023**). Delineation of groundwater potential zones with Analytic Hierarchy Process based geospatial modelling approach in metropolitan expanse. Desalination and Water Treatment, 315, 399-412. [Link]
- Sastry, S., Xing, X., Dhakal, A., Khanal, S., **Ahmad, A.**, & Jacobs, N. (**2023**). LD-SDM: Language-Driven Hierarchical Species Distribution Modeling. [Link]
- Mazhar, N., Javid, K., Akram, M. A. N., Afzal, A., Hamayon, K., & **Ahmad, A.** (**2023**). Index-Based Spatiotemporal Assessment of Water Quality in Tarbela Reservoir, Pakistan (1990– 2020). Geography, Environment, Sustainability, 15(4), 232-242. [Link]
- **Ahmad, A.**, Ahmad, S. R., & Gilani, H. (**2023**). Potential Tree Species Distribution Modelling Using MaxEnt Model for Resource Partitioning in Azad Jammu and Kashmir (AJK), Pakistan. In Concepts and Applications of Remote Sensing in Forestry (pp. 135-152). Singapore: Springer Nature Singapore. [Link]
- Afzal, N., **Ahmad, A.**, Shirazi, S. A., Younes, I., & Ha, L. T. T. (**2022**). GIS-based landslide susceptibility mapping using analytical hierarchy process: a case study of Astore region, Pakistan. EQA-International Journal of Environmental Quality, 48, 27-40. [Link]

- Khushi, M., Ahmad, S. R., **Ahmad, A.**, Butt, I., Akram, W., & Akhtar, A. (2022). Role of Geospatial Technology in Crime Mapping & Analysis: A Case Study of District Kasur, Punjab, Pakistan. International Journal of Innovations in Science & Technology, 4(3), 751–762. [Link]
- Ahmed, N., Wang, G., Booij, M. J., Ceribasi, G., Bhat, M. S., Ceyhunlu, A. I., & **Ahmad, A.** (2022). Changes in monthly streamflow in the Hindukush–Karakoram–Himalaya Region of Pakistan using innovative polygon trend analysis. Stochastic Environmental Research and Risk Assessment, 36(3), 811-830. [Link]
- **Ahmad, A.**, Gilani, H., Shirazi, S. A., Pourghsemi, H. R., & Shaukat, I. (2022, April). Lahore, the city of gardens, has lost 70% of its tree cover (اپ لاہور شہر کا باغوں 70 ن. فیصد درختوں سے محروم ہو چکا ہے). Express Sunday Magazine. [Link]
- **Ahmad, A.**, Gilani, H., Shirazi, S. A., Pourghasemi, H. R., & Shaukat, I. (2022). Spatiotemporal urban sprawl and land resource assessment using Google Earth Engine platform in Lahore district, Pakistan. In Computers in Earth and Environmental Sciences (pp. 137-150). Elsevier. [Link]
- Gilani, H., **Ahmad, A.**, Younes, I., & Abbas, S. (2022). Impact assessment of land cover and land use changes on soil erosion changes (2005–2015) in Pakistan. Land Degradation & Development, 33(1), 204-217. [Link]
- Tufail, R., **Ahmad, A.**, Javed, M. A., & Ahmad, S. R. (2022). A machine learning approach for accurate crop type mapping using combined SAR and optical time series data. Advances in Space Research, 69(1), 331-346. [Link]
- **Ahmad, A.**, Ahmad, S. R., Gilani, H., Tariq, A., Zhao, N., Aslam, R. W., & Mumtaz, F. (2021). A synthesis of spatial forest assessment studies using remote sensing data and techniques in Pakistan. Forests, 12(9), 1211. [Link]
- **Ahmad, A.**, Gilani, H., & Ahmad, S. R. (2021). Forest aboveground biomass estimation and mapping through high-resolution optical satellite imagery—A literature review. Forests, 12(7), 914. [Link]
- Hassan, I., Javed, M. A., Asif, M., Luqman, M., Ahmad, S. R., **Ahmad, A.**, Akhtar, S., & Hussain, B. (2020). Weighted overlay based land suitability analysis of agriculture land in Azad Jammu and Kashmir using GIS and AHP. Pakistan Journal of Agricultural Sciences, 57(6). [Link]
- Tong, S. S., Pham, T. L., Nguyen, Q. L., Le, T. T. H., Cao, X. C., **Ahmad, A.**, & Tong, T. H. A. (2020). The study of land cover change using change vector approach integrated with unsupervised classification method: A case in duy tien (Vietnam). Geography, Environment, Sustainability, 13(2), 175-184. [Link]
- Nguyen, B. D., Minh, D. T., **Ahmad, A.**, & Nguyen, Q. L. (2020). The role of relative slope length in flood hazard mapping using AHP and GIS (case study: Lam River Basin, Vietnam). Geography, Environment, Sustainability, 13(2), 115-123. [Link]
- Ashraf, N., Ahmad, S. R., **Ahmad, A.**, & Javed, M. A. (2020). Assessment of Land Suitability for Tea Cultivation Using Geo-Informatics in the Mansehra and Abbottabad District. Pakistan Journal of Scientific & Industrial Research Series A: Physical Sciences, 63(1), 65-70. [Link]
- Shirazi, S. A., **Ahmad, A.**, & Qureshi, S. (2020). Assessing the Impact of Land Use and Land Cover (LULC) Changes on the Biodiversity of River Ravi, Lahore—Pakistan. In Making Green Cities: Concepts, Challenges and Practice (pp. 245-261). Cham: Springer International Publishing. [Link]
- Bui, X. N., Lee, C., Nguyen, Q. L., **Ahmad, A.**, Cao, X. C., Nguyen, V. N., Le, V. C., Nguyen, H., Le, Q. T., Duong, T. H., & Nguyen, V. D. (2019). Use of unmanned aerial vehicles for 3D topographic mapping and monitoring the air quality of open-pit mines. Inżynieria Mineralna, 21(2/2), 223-239. [Link]
- Jahan, Z., Sarwar, F., Younes, I., Sadaf, R., & **Ahmad, A.** (2019). Assessment of smog pattern and its effects on visibility in Lahore using remote sensing and GIS. International Journal of Economic and Environmental Geology, 10(2), 55-59. [Link]
- Long, N. Q., **Ahmad, A.**, & Cuong, C. X. (2019). Designing observation lines: a case study of the G9 seam in the Mong Duong colliery. Journal of Mining and Earth Sciences, 60(3), 0-0. [Link]
- Gilani, H., & **Ahmad, A.** (2018, October). Lahore is losing its green cover—fast. MIT Technology Review. [Link]
- Akram, W., **Ahmad, A.**, Javed, M. A., & Raoof, A. (2017). Exploring existing spatial patterns of diarrhea and proposing new health unit using GIS in district Vehari, Punjab Pakistan. In Geo-Spatial Technologies and Earth Resources 2017 (GTER 2017) (pp. 83-90). Hanoi: Publishing House for Science and Technology. [Link]
- **Ahmad, A.**, Ahmad, S. R., Javaid, U. & Javed, M. A. (2017). Above Ground Carbon Quantification in a Moist Temperate Himalayan Forest. In First International Conference on Emerging Trends in Earth and Environmental Sciences (ETEES). Lahore, Pakistan. [Link]
- Ali, M., Ahmad, S. R., Javed, M. A., **Ahmad, A.**, & Waqas, M. (2017). A GIS Based Water Loss Assessment and Real Time Leakage Detection in Water Supply Pipelines of Faisalabad City. In First International Conference on Emerging Trends in Earth and Environmental Sciences. Lahore. [Link]
- **Ahmad, A.**, Javaid, U., Javed, M. A., Ahmad, S. R., Jaffri, M. A., & Ashfaq, M. (2016). Landfill sites identification using GIS and multi-criteria method: a case study of intermediate city of Punjab, Pakistan. Journal of Geographic Information System, 8(1), 40-49. [Link]
- Javaid, U., Ahmad, S. R., **Ahmad, A.**, & Javed, M. A. (2015). Assessment of Transit Stops Service Area Using Geographical Information System–A Case Study of Punjab University Transportation. Pakistan Journal of Science, 67(4). [Link]

- Ahmad, S. R., Javaid, U., **Ahmad, A.**, & Taj AA. (**2013**). Assessment of Transit Stop Service Area using GIS: A Case Study of Punjab University Transportation. In IEEE: International Conference on Aerospace Science and Engineering (ICASE). Islamabad, Pakistan.
- Ahmad, S. R., **Ahmad, A.**, Javaid, U., & Javed, M. A. (**2013**). Multi-Criteria based Landfill Sites Identification by using GIS: A Case Study of Sahiwal Tehsil, Pakistan. In IEEE: International Conference on Aerospace Science and Engineering (ICASE). Islamabad, Pakistan.
- Sanaullah, M. & **Ahmad, A.** (**2013**). Morphometric Relation to the Geological Structures of Haro River Drainage Basin, Northern Pakistan. In 10th Meeting of the Saudi Society for Geosciences: Geosciences for Sustainable Development. Dhahran, Saudi Arabia. [Link]
- Javed, M. A., Ahmad, S. R., **Ahmad, A.**, Taj, A. A., & Khan, A. (**2013**). Assessment of neighborhood parks using GIS techniques in Sheikhupura city. Pakistan journal of science, 65(2). [Link]
- **Ahmad, A.**, Ali, S., & Mushtaq, A. (**2012**). Analyzing health facility localities in relation with population distribution using GIS techniques for Lahore city. In 5th National Undergraduate Medical Research Fair. Peshawar, Pakistan.

REFERENCES

Will be furnished upon request.