

Dr. Muhammad Asif Javed

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Expertise:

Digital Cartography, Geo-spatial techniques in Earth sciences, Remote sensing based Irrigation and Agriculture management, Integrated Water resource management, GIS in Transportation, GIS & Remote sensing in urban planning, Spatial modeling, Geodesy and Surveying, Multicriteria techniques, GIS in power system.

Education:

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- PhD. (2020)**
Doctor of Philosophy in Geomatics.
Thesis: Irrigation Water Demand Modeling by Monitoring of Crop Health Cycle: A GIS and Remote Sensing Perspective
College of Earth & Environmental Sciences, University of the Punjab, Lahore
- M.Phil. (2013)**
Masters of Philosophy in Geomatics with core: Geodesy & Surveying, Spatial Modeling, Hydrology, Multicriteria techniques, Advance Remote Sensing, Advance GIS.
CGPA: (2nd position)
Thesis: Sensitivity and Suitability Assessment of Urban Parks using GIS and Multicriteria Approach: A case study of Sheikhpura City
Institute of Geology, University of the Punjab, Lahore, Pakistan
- BSc (Hons) (2008)**
Bachelor of Science in Space Sciences with core: Remote Sensing & Image Interpretation, Image processing, GIS, Meteorology, Climatology, Atmospheric Science
Thesis: Land Covers & Cloud Classification for Pakistan using Meteosat satellite data
Department of Space Science, University of the Punjab (P.U) Lahore, Pakistan

Experience:

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1. **Organization:** University of the Punjab, Lahore, Pakistan
Position: Assistant Professor (August 2022 to date)
Lecturer /Visiting Faculty (March 2018 –August 2022)
Lecturer/ Full time Faculty Member (September 2016 – to February 2018)
Duties: Lectures, Students supervision in theses/research projects, administrative duties, Coordinator ship etc.

Courses Taught/ Research Supervision

Courses/Trainings

Fundamentals of GIS & RS, GIS problem Solving & Spatial Analysis, GIS Applications in water resources management, GIS in Transportation, GIS in urban planning, Spatial modeling, Research design and project management, GIS & Multicriteria techniques, Coordinate System & Projections, GPS & Surveying, Cartography and Spatial Data Visualization, Irrigation Water Demand Modeling, Punjab water supply policy etc.

M.Phil. Thesis Supervision

1. Assessing Soil Erosion Risk in Arandu, Gilgit Baltistan using Geospatial techniques: A Climate Change Perspective
2. Spatio-temporal patterns of air pollution in Faisalabad and Gujranwala districts using open source Remote sensing datasets
3. Assessing deforestation and soil erosion in Waziristan, Khyber Pakhtunkhwa; Insights from Remote sensing and spatial analysis
4. Appraisal of Air pollution concentration in Lahore district and transboundary crop burning activities using Remote sensing technologies
5. Spatio-temporal assessment of air pollution in Karachi and Faisalabad using sentinel-5P data: A Remote sensing perspective
6. Investigating the Relationship between Chlorophyll a Concentration and Aerosol Optical Depth in the Arabian Sea Using Remote Sensing Data
7. Spatio temporal analysis of variability in dust aerosols and chlorophyll a in Arabian Sea
8. Appraisal of deforestation and forest degradation trends in tribal areas of Pakistan using open Source Satellite Imagery
9. Spatiotemporal analysis of trends in groundwater level fluctuation in Punjab using GRACE satellite
10. Comparative Evaluation of Soil Erosion Estimation Using RUSLE and MCDA Models with Open-Source Satellite-based variables
11. Spatio-temporal Analysis of Land Cover Changes and its impact on Climatic Drivers: A case study of Peshawar District.
12. Qualitative and Quantitative Assessment of Groundwater for Irrigation Purposes Using Geospatial Techniques in Different Tehsils of Punjab, Pakistan.
13. Nesting bird's feathers as biomonitor to investigate source and spatial distribution of trace metals
14. Delineation of ground water quality in various vulnerable tehsils of Punjab by using GIS techniques
15. Spatio-temporal assessment of heat waves and heat stress indices in two metropolitan cities of Pakistan
16. Assessment of trace elements in different species of birds from Lahore, Pakistan.
17. Scrutinizing the efficacy of fire brigade emergency services in terms of accessibility in Lahore city: A GIS perspective
18. Advanced Analysis for the Population Estimation at District Level in Punjab Province: A GIS and Remote Sensing Perspective
19. Dam Site Selection using Remote Sensing Techniques and Geographical Information System (GIS): A Case Study of Kurram Tangi, North Waziristan, Pakistan.
20. Crop Yield Estimation using Spatio-Temporal Techniques in Okara District
21. A Spatio-Temporal Study for the Appraisal of traffic Congestion issues in Lahore
22. Geospatial Techniques for Topographic Analysis Based Upon Bedrock Geology: A Case Study of Ziarat District, Baluchistan, Pakistan
23. Utilization of GIS /RS techniques for Facilitating Urban Sustainability
24. Comparative Study of Satellite and Gauge- Based Rainfall by Using Advanced Rainfall Correction Methods
25. Decision Support System for Efficient Irrigation Management using Geospatial Technology
26. Historical Assessment of Monsoon Shifting Pattern in Punjab, Pakistan
27. Scrutinizing the efficacy of fire brigade emergency services in terms of accessibility in Lahore city: A GIS perspective
28. Analyzing Ground Water Vulnerability: A GIS Approach for Quantification of Available of Ground Water in Ground Water Depletion Regions of the Punjab

29. A Geospatial Approach for Facilitating Urban sustainability in Bahawalpur city
30. Geospatial Techniques for Topographic Analysis Based Upon Bedrock Geology: A Case Study of Ziarat District, Baluchistan, Pakistan
31. Need assessment of GIS and web-GIS for Mineral sector – a case study of Mines & Minerals Department, Punjab
32. Repercussion of Spatial pattern of Green spaces on land surface temperature by using advanced Geospatial methods
33. A Web based Decision support system for selection of suitable industrial sites in Punjab
34. A Machine Learning approach for accurate crop type mapping using combined Polarimetric SAR and optical time series data.
35. Geo-Spatial Analysis and modeling for the assessment of water borne diseases in validation with water quality data: A case study for Multan District
36. Impact assessment of dying industrial units' waste on ground water quality using Geo-spatial techniques in Faisalabad
37. Temporal assessment of water quality using GIS: A case study of Muzaffargarh District.
38. Appraisal of Ground water quality in rural areas of Vehari District using spatio-temporal techniques.
39. Multiple classification techniques comparison using high Resolution Pleiades satellite imagery for improved forest mapping: a case study of Rahim Yar Khan, Qasim wala
40. Suitability and sensitivity assessment of Public sector schools in Vehari city using GIS & Multicriteria Approach.
41. Agro-ecological zoning for Azad Jammu and Kashmir using remote sensing and GIS techniques
42. Advancing Spatiotemporal Analysis of Groundwater Dynamics in Punjab: Leveraging GRACE Satellite Data for Enhanced Insights
43. Comparative Evaluation of Soil Erosion Estimation Using RUSLE and MCDM Models with Open Source Satellite-based Variables
44. Appraisal of deforestation and forest degradation trends in tribal areas of Pakistan using open Source Satellite Imagery
45. Prioritization of hydro climatic variables for soil loss assessment in Gilgit-Baltistan using Analytical hierarchal process (AHP) in integration with Multicriteria decision (MCD) modelling

BS/M.Sc. Research Supervision

1. Climate Vulnerability Mapping for various major cities of Punjab: GIS and Remote Sensing Perspective
2. Mapping the concentration of Methane Gas over Lahore and Multan Cities using Remote sensing datasets
3. Estimating Soil Erosion in Baluchistan Province, Pakistan Using GIS and Remote Sensing Techniques
4. Assessing the impacts of urban sprawl on land surface temperature in Faisalabad district over last three decades: A remote sensing perspective
5. Analyzing the Impact of Rapid Urbanization on Urban Heat Islands in Multan District Using Open Source Remote Sensing Datasets
6. Spatio-temporal study of urban green spaces in Lahore by using Geospatial techniques
7. Landfill site selection with GIS & Multicriteria decision analysis for Gujranwala city
8. Spatio-temporal analysis for the assessment of Ground water contamination in Lahore district
9. Assessing the Impact of Urban Sprawl on Land Surface Temperature in Faisalabad District over Last Three Decades
10. Estimating Soil Erosion in Baluchistan, Pakistan Using GIS and Remote Sensing Techniques
11. Analyzing the impact of rapid urbanization on urban heat islands in Multan district using open source Remote sensing datasets

2. Organization: Geo Band Pvt. Ltd.

Position: Research & Development Specialist (March 2018 –April 2022)

Duties: R&D, Supervision of Data Acquisition & processing, Site Suitability analysis, Watershed analysis, Capacity building, Report writing

Projects:

- Hydrological Modeling, Spatial analysis and mapping of potential gold sites in Barkina Faso, Africa
- Feasibility study of Iron, copper, marble and granite ores and sites in Gilgit-Baltistan, Pakistan
- Hydrological modeling of Gilgit and Chillas districts, Gilgit-Baltistan province, Pakistan for potential sites of small DAMs feasibility
- Web development for mineral assets in Gilgit-Baltistan
- Feasibility study for Electric Power system in Gilgit-Baltistan, Pakistan

3. Organization: Geo Band Pvt. Ltd.

Position: Transport Planning Unit, Transport Department Govt. of Punjab. (June 2011 –July 2016)

Duties: Data Management, Network Analysis, Survey supervision and Report writing

Projects:

- A GIS based Zoning for Punjab Intercity Terminals
- Mapping and spatial databases development for Punjab Transport Infrastructure Management System
- A web based GIS application of Journey planner for major cities of Punjab
- Mapping and GIS based Multicriteria analysis for Sheikhpura Transport Master Plan
- Mapping and GIS based Multicriteria analysis for Gujranwala Transport Master Plan
- Spatial databases development and analysis for Lahore Urban Transport Master Plan 2030
- GIS Mapping for Flooded areas of Punjab

4. Organization: The Urban Unit

Position: Research Assistant GIS (August 2010 –May 2011)

Duties: Data Management, Spatial databases development, Spatial Analysis and GIS Survey

Projects:

- GIS Based Land Record management in Sialkot District
- Spatial databases development and Landuse Mapping of Sialkot District

5. Organization: SPADE Foundation

Position: GIS Assistant GIS (January 2009 –July 2010)

Duties: Data Management, Spatial databases development, Spatial Analysis and GIS Survey

Projects:

- Navigational System for Major cities of Punjab
- Land Record Management and Landuse Mapping of Lahore District

Other Projects/ Consultancies:

- Cadastral Mapping for 18-Hazari tehsil, District Jhang (**Client-PULSE/World Bank**)
- Remote sensing applications in agriculture and field boundary delineation (**Client-Better Cotton International**)
- Improving Water Management and Irrigation Systems in Punjab Irrigation Modernization - Groundwater Management (**Client-World Bank**)
- Spatial Decision Support System for Lower Bari Doab Canal (**Client-Asia Development Bank**)
- Flood Early Warning System for Dera Ismail Khan (**Client-VEER Development Organization**)

Awards / Achievements:

- Secured second position in M.Phil. Program
- Publications in National and International Journals
- Appointed External Supervisor for Theses / Projects evaluation by University of the Punjab

Software Skills/Technicalities:

ArcGIS Pro, Google Earth Engine, R Language, ENVI, SAGA GIS, QGIS, IDRISI, ERDAS IMAGINE, Surfer, Arc Pad, Global Mapper, DGPS, Drone processing, and Microsoft packages

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| ➤ Mapping | ➤ Data Conversion | ➤ Watershed Analysis |
| ➤ Layout Designing | ➤ Site Suitability | ➤ Network Analysis |
| ➤ Data Editing | ➤ Spatial Analysis | ➤ Temporal Analysis |
| ➤ Data Formation | ➤ Spatial Modeling | ➤ 2D & 3D Visualization |
| ➤ Data Fusion | ➤ Multicriteria Analysis | ➤ Image Interpretation |

Trainings/Workshops Conducted:

2023 & 2024- Water Training Research Institute

GIS & RS in Hydrology

2020- Geological Survey of Pakistan

GIS & RS Applications in Geology

2018- Punjab Economic Research Institute

GIS & RS in Economics

2017 & 2016- Water Training Research Institute

GIS & RS in Water informatics

2017- College of Earth & Environmental Sciences, University of the Punjab

Advance GIS & RS Training

2016- College of Earth & Environmental Sciences, University of the Punjab

Basic GIS & RS Training

2016- College of Earth & Environmental Sciences, University of the Punjab

GIS & RS in Flood Hazard Management

2013- Institute of Geology, University of the Punjab

GIS & RS Short course

Publications:

1. Naseem Zahra, Nadia Jamil, Muhammad Khalid Saeed, **Muhammad Asif Javed**, Najeeb Ullah et al., (2025). Geospatial distribution of mycotoxins in wheat collected in summer and winter seasons from a selected area. *Italian Journal of Food Science*, 2025: 7(3).
2. Tahir Sattar, Nigar Fatima Mirza, **Muhammad Asif Javed**, Muhammad Nasar- u- Minallah and Shahid Malik. (2025). Changing pattern of urban landscape and its impact on thermal environment of Lahore; Implications for climate change and sustainable development. *Environmental Monitoring and Assessment*, 197(2), 151.
3. Rimsha Azhar, **Muhammad Asif Javed**, Muhammad Nasar-u-Minallah, Silvia Machado, Muhammad Jabbar, (2024). Urban Transformation in Lahore: Three Decades of Land Cover changes, Green spaces decline, and sustainable development challenges. *Geography, Environment, Sustainability*. 2(17):6-17.
4. Faisal Farooq, Muhammad Waqar, **Muhammad Asif Javed** et al., (2024). Potential site selection for groundwater recharge using advanced geospatial techniques. *Pakistan Journal of science*.
5. Ajmal Shahzad, Muhammad Wajid Ullah, Jawad Alib, Kazim Azizd, **Muhammad Asif Javed**, Zhijun Shia, Sehrish Mananc, Mazhar Ul-Islame, Mudasir Nazarc, Guang Yang. (2023). The versatility of nanocellulose, modification strategies, and its current progress in wastewater treatment and environmental remediation. *Science of the total environment*.
6. Ajmal Shahzad, Jawad Ali· Muhammad Wajid Ullah Kazim Aziz, **Muhammad Asif Javed**, Fida Hussain, Sehrish Manan, Khalid Ali Khan, Thamer Alomayri, Weam Abdul Raheem, Guang Yang. (2023). Fe-based dual-center heterogeneous catalyst assisted with reduced graphene oxide for the activation of peroxymonosulfate. *Advanced Composites and Hybrid Materials*
7. Usfa Asif, Aqsa Munir Ahmad, **Muhammad Asif Javed** et al., (2023). groundwater quality and quantity analysis for irrigation purposes in Okara, Sahiwal and Khanewal districts of Punjab, Pakistan. *Journal of Geography, Environment, Sustainability*.
8. Muhammad Nabeel Khalid, Muhammad Nasar Ahamd, **Muhammad Asif Javed** el., (2023). Modelling future urban network capacity and Land use/Land cover simulation using GEE and remote sensing Data. *Arabian Journal of Geosciences*.
9. Saif Ullah Khan, Sajid Rashid Ahmed. Muhammad Adnan Shahid, **Muhammad Asif Javed** et al., (2023). Assessment of Groundwater Quality in Tehsil Jhang and its Impact on Human Health Using GIS Based Techniques. *Pakistan Journal of Scientific and Industrial Research*.
10. Umar Javaid, Sajid Rashid Ahmed, Sawaid Abbas, **Muhammad Asif Javed** et al., (2022). Identification of potential sites for rainwater storage to enhance agricultural practices in kirthar mountain range. *Pakistan Journal of Agricultural Sciences*.
11. Muhammad Khurram Shehzad, Adnan Gulzar. **Muhammad Asif Javed**, Sajid Rashid Ahmad, (2022). Crop identification for rabi and kharif seasons using spatio-temporal techniques in Okara district.

12. Adnan Gulzar, Muhammad Khurram Shehzad, **Muhammad Asif Javed**, Sajid Rashid Ahmad, (2022). A spatio-temporal study for the appraisal of traffic congestion issues in Lahore, Punjab, Pakistan. Pakistan Geographical review.
13. Abid Sarwar, Sajid Ahmad Rashid, Muhammad Ishaq Asif Rehmani, **Muhammad Asif Javed** et al., (2021). Mapping Groundwater Potential for Irrigation, by Geographical Information System and Remote Sensing Techniques: A case study of District Lower Dir, Pakistan. Atmosphere.
14. Madiha Batool, Sajid Rashid Ahmad, **Muhammad Asif Javed**, (2021). An Assessment of Landslide Hazards in Muzaffarabad-Azad Jammu & Kashmir using Geospatial Techniques. Pakistan Geographical Review.
15. Rahat Tufail, Adeel Ahmad, **Muhammad Asif Javed** et al., (2021), A machine learning approach for accurate crop type mapping using combined SAR and optical time series data. Advances in Space Research.
16. Saira Ibrahim, Sajid Rashid Ahmed, **Muhammad Asif Javed** et al., (2021). Landfill site selection for municipal solid waste management in Sargodha district using GIS and remote sensing techniques. Pakistan Journal of Science.
17. Muhammad Waleed, Sajid Rashid Ahmad, Muhammad Asif Javed et al., (2020). Identification of irrigation potential areas, using multi-criteria analysis in Khyber District, Pakistan. Environmental Science & Pollution Research.
18. **Muhammad Asif Javed**, Sajid Rashid Ahmad, Waqas Kareem Awan et al., (2020) Estimation of crop water deficit in Lower Bari Doab, Pakistan using Reflection based crop coefficient. ISPRS International Journal of Geo-Information.
19. **Muhammad Asif Javed** & Sajid Rashid Ahmad, (2020). A Decision Support System for Crop Water Requirement Estimation using Advanced Geospatial Techniques. Pakistan Journal of Agricultural Sciences.
20. Iqbal Hassan, **Muhammad Asif Javed**, Muhammad Asif et al., (2020). Weighted Overlay Based Land Suitability Analysis of Agriculture Land in Azad Jammu and Kashmir using GIS and AHP. Pakistan Journal of Agricultural sciences.
21. Nasir Ashraf, Adeel Ahmad, **Muhammad Asif Javed** & Sajid Rashid Ahmad, (2020). Assessment of land suitability for tea cultivation using Geoinformatics in the Mansehra and Abbottabad district” Pakistan. Journal of Scientific and Industrial Research.
22. Muhammad Sajid Saleem, Sajid Rashid Ahmad, Shafiq ur Rehman & **Muhammad Asif Javed**, (2020). Impact assessment of urban development patterns on land surface temperature by using remote sensing techniques: a case study of Lahore, Faisalabad and Multan district. Environmental Science & Pollution Research.
23. Bilal Ahmad Munir, Sidra Hafeez, Sajid Rashid, Rabia Iqbal, **Muhammad Asif Javed**. (2019). Geospatial assessment of physical accessibility of healthcare and agent-based modeling for system efficacy. GeoJournal.

24. Tahira Shaheen, Shafiq ur Rehman, **Muhammad Asif Javed**, Sajid Rashid Ahmed et al., (2018). GIS Based investigation of food chain vulnerability to radiation exposure in Pakistan; a Review. *Transylvanian Review*.
25. Anila Falak Sher, Shafique-ur-Rehman, **Muhammad Asif Javed** et al., (2018). Investigation of Karachi heat Wave Using Geospatial Information System. *Pakistan Journal of Science*.
26. Fatima Imtiaz, **Muhammad Asif Javed**, Shafiq ur Rehman et al., (2017). Geo-spatial Techniques for the Selection of Landfill Site: A Case Study of Gujranwala City, Pakistan. *Transylvanian Review*.
27. Waseem Akram, Adeel Ahmad, **Muhammad Asif Javed** & Abdul Raof, (2017). Exploring existing spatial patterns of diarrhea and proposing new health unit using GIS in district Vehari, Punjab Pakistan. *Geospatial technologies and earth resources*.
28. Jabeen Fatima, **Muhammad Asif Javed** & Sajid Rashid Ahmad (2017). Assessing the serviceability status of existing transport network by using Geospatial techniques in metropolitan city Lahore. *Pakistan Journal of Scientific and Industrial Research*.
29. Adeel Ahmad, Umar Javaid, **Muhammad Asif Javed**, (2015). Multi-Criteria based Landfill Sites Identification by using GIS: A Case Study of Sahiwal Tehsil, Pakistan. *International Journal of Geographic system*.
30. Umar Javaid, Sajid Rashid Ahmad, Adeel Ahmad, Azhar Ali Taj & **Muhammad Asif Javed**, (2015). Assessment of Transit Stops Service Area Using Geographical Information System: A Case Study of Punjab University Transportation. *Pakistan Journal of Science*.
31. **Muhammad Asif Javed**, Sajid Rashid Ahmed, Adeel Ahmed et al., (2013). Assessment of neighborhood parks using GIS Techniques in Sheikhpura City. *Pakistan Journal of Science*.

International Conferences

- Aliza Aziz & **Muhammad Asif Javed** (2025). Mapping of Air Quality (No₂ and So₂) for Metropolitan cities of Punjab, Pakistan: A Remote Sensing Perspective. *World Congress "Climate Change and its Effect"*. CCIE-2025, Khatmandu, Nepal.
- Muhammad Waleed, Sajid Rashid Ahmad, **Muhammad Asif Javed**, Samiullah, Saifullah and Zahra Majid (2020). Identification of Irrigation Potential areas using Multi-Criteria analysis in Khyber District, Pakistan. *"International Conference on Emerging Trends in Earth and Environmental Sciences (ETEES), Lahore, Pakistan*.
- Iqbal Hassan, **Muhammad Asif Javed**, Sajid Rashid Ahmad, Rizwan Saqib, Adeel Ahmad, Muhammad Asif (2020). Hypsographical and Climate Change Analysis of Changing Snow Cover in Astore River Basin from 2009 to 2019 Using Modis and SRTM Data. *"International Conference on Emerging Trends in Earth and Environmental Sciences (ETEES), Lahore, Pakistan*.
- Shafiq ur Rehman, Sohail Rabbani, **Muhammad Asif Javed** and Sajid Rashid Ahmad (2018). Bringing economic sustainability through exploration of ecotourism potential in Ziarat, Pakistan" *International Conference on China-Pakistan Economic Corridor (ICCPEC)", Peshawar*.
- Waseem Akram, Adeel Ahmad, **Muhammad Asif Javed**, Abdul Raof (2017). Exploring existing spatial patterns of diarrhea and proposing new health unit using GIS in district Vehari, Punjab Pakistan. *International Conference on Geospatial technologies and earth resources, Hanoi, Vietnam*.
- **Muhammad Asif Javed**, Mohsin Ali, Sajid Rashid Amad and Adeel Ahmad (2017). A GIS based water loss Assessment and Real time leakage detection in water supply pipelines of Faisalabad city. *"International*

Conference on Emerging Trends in Earth and Environmental Sciences (ETEES), Lahore.

- **Muhammad Asif Javed**, Dr. Sajid Rashid Ahmad, Samawia Rizwan (2017). Sensitivity and suitability assessment of urban parks in Sheikhpura city by using GIS and multilateral approach.

International Conference on Emerging Trends in Earth and Environmental Sciences (ETEES), Lahore).

- Sajid Rashid Ahmed, Adeel Ahmed, **Muhammad Asif Javed**, Umar Javaid. (2013). Multicriteria based Landfill site selection by using GIS: A case Study of Sahiwal district. *3rd International conference on Aerospace Science and Engineering (ICASE-2013), Islamabad, Pakistan.*

References:

- **Prof. Dr. Sajid Rashid Ahmad (Principal)**
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- **Prof. Dr. Muhammad Nawaz (Professor Emeritus)**
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Email: sajidpu@yahoo.