
MUHAMMAD SOHAIL AKBAR

- **Master of Science in Geographic Information Systems (MSCGIS)**
- **Master of Science in Computer Science**
- **Total Experience:** 13 years
- **Currently Working:** DHA Lahore
- **Nationality:** Pakistani
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PERSONAL SUMMARY:

With 13 years of pioneering experience in the GIS field, I have established myself as a leading expert in harnessing the power of geospatial technology to drive informed decision-making. My extensive expertise spans the entire GIS spectrum, from designing and implementing cutting-edge web GIS systems to developing advanced spatial analysis tools and monitoring dashboards. My passion for innovation has enabled me to integrate GIS and MIS data seamlessly, unlocking new insights and efficiencies for organizations. As a seasoned GIS developer and strategist, I bring a unique combination of technical prowess, business acumen, and creative vision to deliver transformative geospatial solutions that shape the future.

PROFESSIONAL PROJECTS HIGHLIGHTS:

- Developed a cutting-edge GIS-based Land Record Management System (ERP) for DHA.
- Successfully implemented MIS & GIS-Based Land Record Management Information System for the Punjab Government, streamlining land record management and ensuring accurate land ownership information.
- Designed and managed the development of a MIS & GIS-based planning tool for COVID-19 response, enabling efficient passenger tracking, NGO fund management, and patient records management.
- Created a GIS-based system for Punjab price control, ensuring fair pricing practices in the province.
- Supervised the Khadim-e-Punjab Rural Roads Program 2015-17, aimed at improving rural infrastructure and connectivity.
- Developed a MIS & GIS-based Urban Immovable Property Tax System, aimed at improving property tax collection and management in urban areas.
- Created a MIS & GIS-based Disease and Vector Data Analysis Tool, facilitating effective disease surveillance and control.
- Developed a MIS & GIS-based Punjab Transport Infrastructure Management System, aimed at improving transportation planning and management in the province.
- Supervised the MIS & GIS/Android-based WASA Consumer Survey, aimed at improving water and sanitation services in the province.

- Successfully developed and implemented the MIS & GIS/Android-based Punjab Healthcare Commission Survey, aimed at ensuring quality healthcare services.
- Created the MIS & GIS/Android-based Land Use Survey, aimed at providing comprehensive land-use data for informed decision-making.
- Implemented the SMS-based Punjab Wheat Procurement System, aimed at streamlining wheat procurement processes and ensuring timely payments to farmers.
- Developed the SMS-based Attendance System for Literacy & Non-Formal Basic Education Department, aimed at improving attendance tracking and reporting in the education sector.
- Supervised the MIS & GIS/Android-based Flood-2014,15 Houses Damage Assessment Survey, aimed at assessing flood damages and enabling targeted relief efforts.

WORK EXPERIENCE

- **Assistant Director GIS, DHA Lahore (May 2022 - Present)**
 - Duration: 2 year (ongoing)
 - Reference: Tasduq (Assistant Director GIS)
 - Contact: +923204111023
- **GIS Development Manager, the Urban Unit Punjab GOVT (February 2012 - April 2022)**
 - Duration: 10 years 2 months
 - Reference: Naveed Ahsan (M&E)
 - Contact: +923224008944
- **PHP Developer, HCT (July 2011 - January 2012)**
 - Duration: 7 months
 - Reference: M. Asif (CEO)
 - Contact: +923007859659

EDUCATION

- Master of Science in Computer Science (MCS), Lahore Leads University (2013-2015)
- Master of Science in Geographic Information Systems (MSc GIS), Punjab University Lahore (2009-2011)
- Bachelor of Commerce in Information Technology (B. Com IT), Islamia University Bahawalpur (2007-2009)
- Intermediate (FA General), Bahawalpur Board (2005-2007)
- Matriculation, Bahawalpur Board (2003-2005)

CERTIFICATIONS

- Enterprise GIS Made Easy (Udemy)
- QField Quickstart (Udemy)
- Display and Analyze GIS Data on the Web with Leaflet (Udemy)

- Survey of Python for GIS Applications (Udemy)
- Server-side Web GIS Applications with Leaflet and PostGIS (Udemy)
- Spatial SQL with Postgres: A Language for Geographers (Udemy)
- Web Engineering with PHP (PUCIT)

TECHNICAL SKILLS AND COMPETENCE

- **Programming Languages:** PHP, .NET, HTML5, JavaScript, C++, Python, R (for spatial analysis)
- **APIs/Libraries:** ESRI JS, Leaflet JS, OpenLayers JS, Angular JavaScript, Bootstrap3, Mapbox, Geopy
- **Frameworks:** .NET MVC4 Framework, CodeIgniter PHP, Laravel, WordPress, WooCommerce, Ionic, Django
- **Databases & Servers:** PostgreSQL (PostGIS), MySQL, SQL Server, MongoDB, GeoServer, ArcServer, Oracle Spatial
- **Tools:** Adobe Photoshop, PHP Storm, ESRI ArcGIS Desktop, QGIS, ArcMap, ArcCatalog, Google Earth, Google Maps

PROFESSIONAL EXPERIENCE:

Currently leading the development of a cutting-edge GIS-based Land Record Management System (ERP) for DHA Lahore, automating manual work processes and streamlining operations.

DHA Lahore Projects:

- Key features of the system include:
 - Centralized geodatabase system with multi-user logins, activity logs, and archived geometry.
 - Automated map-making process and powerful spatial query capabilities.
 - Integration with smartphones for real-time data collection and updates.
 - Real-time data feeds for effective decision-making and management.
 - Spatial analysis tool with GIS Web Dashboards for easy data visualization and interpretation.
- Previously developed a comprehensive GIS-based Land Record Management System for DHA Lahore, integrating data entry and GIS mapping capabilities.
- Digitized land records, including Mauza, Khasra, purchased and acquired data, sale deed data, and possession data.
- Created a user-friendly data entry system to capture and manage land records.
- Digitized revenue maps (Khasra) in a GIS environment and integrated with the data entry system.
- Developed a robust and scalable system to manage and analyze land records, enabling efficient land management and decision-making.

PROJECTS LIST:

1. GIS-INTEGRATED COMPUTERIZATION SYSTEM FOR URBAN IMMOVABLE PROPERTY TAX (UIPT)

The Urban Unit collaborated with Excise, Taxation & Narcotics Control Department to develop a GIS-integrated computerization system for Urban Immovable Property Tax (UIPT) in KPK, Punjab and Sindh. The aim was to increase revenue, reduce revenue leakages, and provide transparency and user-friendliness. As a Development Manager and GIS Developer, responsibilities included:

- Leading the project team
- Designing and implementing the system
- Developing the geodatabase
- Conducting front-end and back-end development
- Integrating MIS and GIS data

The key modules included a survey toolkit, monitoring dashboard for survey, consumer survey data collection toolkit, GIS-based monitoring dashboard for consumer survey, QC picture, final parcel & survey dashboard.

2. PUNJAB SPATIAL STRATEGY

- Developed a comprehensive SDSS using advanced GIS technologies.
- Designed a user-friendly interface for stakeholders using PHP and ESRI JS API.

3. ASSET MANAGEMENT OF PAKISTAN RAILWAYS LAND BY GIS-BASED COMPUTERIZATION AND DEVELOPMENT

- **GIS Development Manager & Project Lead:** Led the development and implementation of a GIS-based Land Management System for Pakistan Railways, improving asset management and oversight, and ensuring timely delivery and meeting project requirements.
- **Tool Development:** Oversaw the creation of multiple tools and dashboards, including an Android-based survey toolkit, monitoring dashboards, and a consumer survey data collection toolkit.
- **GIS Expertise:** Utilized GIS technology to develop a comprehensive system for managing and analyzing Pakistan Railways' lands, demonstrating expertise in spatial analysis and data management.

4. SPECIAL PROTECTION UNIT (MONITORING DASHBOARD)

- **Security System Development:** Designed and developed a comprehensive GIS-based security and monitoring system for foreigner protection in Punjab, ensuring effective emergency response and security plan management.
- **GIS-Based Solution:** Utilized GIS technology to create a three-part system, including a MIS Dashboard, GIS-Based Web Map, and Android Application, demonstrating expertise in spatial analysis and data management for security applications.

5. PUNJAB COLLEGE SPATIAL GEODATABASE AND ANALYSIS VIEWER

- **Education Sector GIS Solution:** Developed a GIS-based system for the Punjab Higher Education Department, providing spatial insights and data analysis tools for informed decision-making.
- **Spatial Analysis Tools:** Designed and implemented analysis tools for measuring aerial distance, viewing nearest colleges, and performing buffer analysis, demonstrating expertise in spatial analysis and data management for education sector applications.

6. TEMPORAL ANALYSIS GIS VIEWER FOR CDA (CAPITAL DEVELOPMENT AUTHORITY)

- **Temporal Analysis GIS Viewer:** Developed a cutting-edge Temporal Analysis GIS Viewer for the Capital Development Authority (CDA), enabling spatial and quantitative analysis of temporal data.
- **Innovative Dashboard Design:** Designed a user-friendly side-by-side comparison dashboard, allowing users to select and analyze two scenarios simultaneously, with synchronized maps that pan and zoom automatically, demonstrating expertise in GIS interface design and development.

7. BASELINE SURVEY FOR CHILD LABOUR (TPV) PUNJAB GOVT

- **Child Labor Survey & Analysis System:** Developed a comprehensive system comprising Android, Dashboard, and GIS Web Applications for child labor survey and analysis, providing insights into underage workers and workplaces.
- **Multi-Component Solution:** Designed and developed multiple applications, including an Android app for data collection, a Dashboard for data analysis, a GIS Web App for real-time workplace location, and a Supervisor/Surveyor Registration Web App for authentication and monitoring, demonstrating expertise in developing complex, integrated solutions.

8. GIS-BASED LAND RECORD MANAGEMENT INFORMATION SYSTEM (LRMIS)

- **Land Record Management System:** Developed the GIS-Based Land Record Management Information System (LRMIS) for the Board of Revenue, Government of Punjab, enhancing service delivery and tenure security across all districts.
- **Comprehensive GIS Solution:** Designed and implemented a robust system featuring mobile scanning, map digitization, data linkage, web publishing, and editing functionalities for GIS cadaster data, demonstrating expertise in developing large-scale, integrated GIS solutions for land management.

9. MURREE LEGAL/ILLEGAL CONSTRUCTION TPV FOR PUNJAB GOVT

- **Construction Audit System:** Developed a TPV system for the Punjab Government to monitor and audit constructions in Murree, Kotli Satin, and Kahuta, ensuring compliance with construction bans and regulations.
- **Satellite Imagery Analysis:** Utilized satellite images to assess construction activities in Murree Tehsil, demonstrating expertise in remote sensing and spatial analysis for urban planning and monitoring applications.

10. ELECTION 2013-18 CODE OF CONDUCT VIOLATION MONITORING SYSTEM

- **Election Monitoring System:** Developed a real-time Election Code of Conduct Violation Monitoring System, enabling effective tracking and redressal of violations by TMOs/Police.
- **Comprehensive Analytics Platform:** Designed and implemented a robust system offering data entry, editing, and analytical views (tabular and graphical), providing insights into development allocation, district-wise allocation analysis, constituency maps, election results, and demographic data, demonstrating expertise in developing complex, data-driven solutions for election monitoring and analysis.

11. KHADAM-E-PUNJAB RURAL ROADS PROGRAM (PHASE 1-2)

- **Rural Roads Monitoring System:** Developed a real-time monitoring system for the Khadam-e-Punjab Rural Roads Program, enabling effective tracking and management of rural road construction projects.
- **Android App & Web Interface:** Designed and implemented a comprehensive system featuring custom-developed Android applications, a dashboard with district-wise progress, a map interface with real-time progress and road pictures, and an admin panel for financial and third-party validation updates, demonstrating expertise in developing integrated, mobile-to-web solutions for infrastructure project monitoring.

12. GIS-BASED PUNJAB TRANSPORT INFRASTRUCTURE MANAGEMENT SYSTEM (GEO-DATABASE)

- **Transport Infrastructure Management System:** Developed the GIS-based Punjab Transport Infrastructure Management System (PTIMS) for the Government of Punjab, providing a robust tool for managing transport resources and addressing challenges.
- **Comprehensive GIS Solution:** Designed and implemented a system featuring geo-mapping of transport infrastructure, affiliated attributes, and four applications - Intercity Bus Terminal, Intra-city Public Transport, Intercity Route Alignment, and Journey Planner - demonstrating expertise in developing large-scale, integrated GIS solutions for transport infrastructure management and planning.

13. GIS-BASED DISEASE AND VECTOR DATA ANALYSIS TOOL

- **Disease Temporal Analysis Tool:** Developed a critical tool for The Institute of Public Health, Government of Punjab, enabling real-time tracking and analysis of disease outbreaks, specifically in response to the devastating dengue epidemic.
- **Dual-Component Solution:** Designed and implemented two interconnected tools, one providing statistical counts of diagnosed patients and available hospital beds, and the other visualizing the spread of the dengue epidemic across Punjab's districts, demonstrating expertise in developing data-driven solutions for public health crisis management.

14. BUSINESS INVENTORY SYSTEM & SHOPPING CART

- **Comprehensive Business Inventory System:** Developed a robust and efficient Business Inventory System using PHP Laravel, enabling effective management of product categories, brands, and stores across multiple geographical locations.
- **E-commerce Integration and Reporting:** Implemented online product sales, customer management, and secure payment processing with PayPal integration, and generated reports and alerts for the Accounts Department, demonstrating expertise in developing end-to-end e-commerce solutions with integrated reporting and alert systems.

15. PUNJAB CITIES GOVERNANCE IMPROVEMENT PROJECT

- **GIS Location Mapping Methodology:** Developed a comprehensive methodology for GIS location mapping of assets for city government entities, including buildings, roads, tube wells, vehicles, machinery, and equipment, ensuring accurate and efficient data collection and mapping.
- **Category-Specific Survey Methodologies:** Designed and implemented separate survey methodologies for different asset categories, including buildings (educational facilities, health facilities, shops, and residential buildings), tube wells, roads, vehicles, machinery, and equipment, and overhead reservoirs, demonstrating expertise in developing tailored solutions for diverse asset types.

16. DEVELOPMENT OF SMART GIS PLATFORM FOR RENEWABLE ENERGY LAND PARCEL SELECTION

- **Designed and Developed a Smart GIS Platform:** Utilized ArcGIS and PostGIS to create a user-friendly platform for searching, querying, and visualizing land parcels for renewable energy projects, enabling efficient land parcel selection and project planning.
- **Implemented Advanced Mapping and Search Functionality:** Incorporated iterative search capabilities, buffer visualizations, and data layers to facilitate manual searching, resulting in enhanced user experience and improved project outcomes.
- **Ensured Data Security and Intellectual Property Protection:** Successfully implemented confidentiality agreements, moral rights waivers, and intellectual property protection measures to safeguard sensitive project information and ensure compliance with legal requirements.

WORKSHOPS:

- **Unlocking the Power of Spatial Data: Introduction to GIS and Mapping (PUCIT-CGIS)**
 - Explore the fundamentals of Geographic Information Systems (GIS) and spatial data analysis
 - Learn how to create interactive maps and visualize data using industry-leading software
- **Spatial Data Analysis with Open Source Tools (PUCIT-CGIS)**
 - Discover the capabilities of open-source GIS software, such as QGIS and GRASS
 - Hands-on training in spatial data analysis, data visualization, and mapping techniques
- **Advanced GIS Techniques for Renewable Energy Projects (PUCIT-CGIS)**
 - Learn how to apply GIS and spatial analysis in renewable energy project planning and development
 - Explore case studies and best practices in using GIS for land parcel selection, site assessment, and project optimization

- **Geospatial Data Science with Python (PUCIT-CGIS)**
 - Learn how to integrate GIS with data science tools, such as Python
 - Develop skills in geospatial data manipulation, analysis, and visualization using popular libraries and frameworks
- **Software Project Management Essentials**
 - Hosted at DHA Lahore
 - Learn the fundamentals of software project management, including agile methodologies and scrum frameworks

“In conclusion, I think that my background and skillsets have prepared me to be a successful contributing team member in this type of environment and for an organization exactly like yours. Thank you so much for your time and consideration”.