

DR. MUHAMMADATIF BUTT
Senior GIS/RS/CS Specialist

Tel # +923229394953, +923009466567, +16478005152

<http://linkedin.com/in/muhammadabutt>

matifbutt@gmail.com



PROFESSIONAL EXPERIENCE

- Total Professional Experience: 19 years
- Research and Teaching: 18 years
- Software Engineering: 17 years
- Project Management: 16 years

EXPERTISE IN

- Land Information Management
- Disaster Management
- Geographic Information System (GIS)
- Remote Sensing (RS)
- Computer Science (CS)
- Object-oriented Unified Modelling
- Research, Teaching, Training & Consulting
- Interactive & Multimedia Instruction
- Special Events Planning/Student Services
- Curriculum Development/Implementation
- Transportation Planning & Management
- Spatial Modelling
- Object-oriented Programming Languages (C++/Java)
- Project Management/Business Technology Management
- Urban Planning
- Public Participation GIS
- R & D (GIS/RS/CS Technologies & Strategies)
- DBMS/SDBMS/Oracle
- Software Design and Development
- Software Usability Testing
- Software Engineering
- Open Source Development and Integration

EDUCATION

Degree	Institution	Tenure
PhD. Space Science (GIS & RS Major)	University of the Punjab	2019
PhD. Civil Engineering (GIS & RS Major)	Ryerson University, Toronto, Canada	2015
Master of Civil Engineering (Applied Sc. GIS Major)	Ryerson University, Toronto, Canada	2007
Master Degree (Software Engineering and Web Development)	University of Management Technology (UMT/Hamdard University)	2001
Master Degree (Information Technology)	Grace Institute, Lahore, Pakistan	1999
Master Degree (Marketing & Business Education)	University of the Punjab	1997

PROFESSIONAL EXPERIENCE

Institution	Designation	Tenure
The Urban Unit, Lahore	Sr. GIS/RS Development Specialist/Trainer	2012 to 2017
Ryerson University, Toronto, Canada	Lecturer/Research Project Developer/Analyst	2002 to 2012
Information Technology Services Humber College, Canada	Service Support GIS/RS Analyst	2005 to 2006
National Database and Registration Authority (NADRA)	System Engineer	2000 to 2002
International Computer Management (ICM) Software House	Software Engineer	2000 to 2002
International Computer Management (ICM) Software House	Sr. Marketing Executive/Project Developer	1997 to 1999
International Computer Management (ICM) Software House	Marketing Executive	1994 to 1995

TEACHING EXPERIENCE

Institution	Designation	Tenure
Superior University	Visiting Professor	2017 to date
University of the Punjab	Assistant Professor	2017 to date

Government College University	Visiting Faculty	2017 to date
The Urban Unit, Training Centre, Lahore	Web GIS Development/ Spatial Database/ RS Training Specialist	2012 to date
Ryerson Toronto University, Canada	Teaching Assistant/Virtual Trainer	2005 to 2015
Waterloo University, Canada	Teaching Assistant/Graduate Asst.	2008 to 2009
Humber College, Canada	Lecturer/ Teaching Assistant	2005 to 2006
College of Business Administration	Lecturer Computer and Business Studies	1999 to 2004
University of Management Technology (UMT)	Lecturer IT Department	2003 to 2004

PROFESSIONAL EXPERIENCE

Employer: University of the Punjab
Designation: Assistant Professor
Duration: 2017 to date

Delivered lectures and course work on the followings topics:

- Spatial Database Design/Relational Database Management
- Geographical Information System (GIS)
- Remote Sensing
- Disaster Risk Management
- Introduction to Matlab Programming
- Introduction to Object-oriented Programming Languages
- Climate Change Management
- Spatial Data Modelling
- Land information System

Employer: Superior University
Designation: Assistant Professor (Visiting Faculty)
Duration: 2017 to date

Delivered lectures and course work on the followings topics:

- Object oriented Software Engineering
- Spatial Database Design/Relational Database Management
- Geographical Information System (GIS)
- Remote Sensing
- Disaster Risk Management
- Introduction to Matlab Programming
- Introduction to Object-oriented Programming Languages
- Climate Change Management
- Spatial Data Modelling
- Land information System

Employer: Forman Christian College University
Designation: Assistant Professor (Visiting Faculty)
Duration: 2018 to date

Delivered lectures and course work on the followings topics:

- Object oriented Software Engineering
- Spatial Database Design/Relational Database Management
- Geographical Information System (GIS)
- Remote Sensing
- Disaster Risk Management
- Introduction to Matlab Programming
- Introduction to Object-oriented Programming Languages
- Climate Change Management
- Spatial Data Modelling

- Land information System

Employer: Government College University
Designation: Assistant Professor (Visiting Faculty)
Duration: 2017 to date

Delivered lectures and course work on the followings topics:

- Spatial Database Design/Relational Database Management
- Geographical Information System (GIS)
- Remote Sensing
- Disaster Risk Management
- Introduction to Matlab Programming
- Introduction to Object-oriented Programming Languages
- Climate Change Management
- Spatial Data Modelling
- Land information System

Employer: The Urban Unit
Designation: Consultant Senior GIS/RS Specialist
Duration: 2012 to date

Provided the technical expertise and specifications to integrate GIS services and tools across Punjab's infrastructure; supporting the operations of the GIS infrastructure including hardware and software installation, configuration, management and operation:

- Provided support with Environmental Systems Research Institute (ESRI) software and services (server and client), Google Earth Pro, web servers, database technologies (Oracle, SQLServer , etc) web applications (FLEX, Silverlight, .Net, etc) on approved infrastructure
- Worked closely with the Oracle/SQLServer DBA to troubleshoot problems with the operation of ArcSDE and other databases
- Troubleshooted interoperability issues with other regional standard application and resolved all related problems
- Provided technical assistance and support in the development of data driven applications
- Provided technical assistance supporting geospatial data optimization approaches
- Provided technical assistance in the development of geospatial tools for tracking environmental trends, performing complex data queries and displaying results in various formats (web, print, etc)

Employer: Ryerson University, Toronto, Canada
Designation: Research Project GIS/RS Developer/Analyst
Duration: 2002 to 2012

Analyzed and designed different projects related to participatory GIS, OSGIS, and real-time OSGIS. Also performed the performance and testing measures of the projects, which evaluate the software usability in relation to the usage of an end user:

- Provided the help in coordinating in the preparation of external and internal external reports.
- Monitored and reported time to time on project deliverables and schedules.
- Reviewed the work for completeness and accuracy with transparency.
- Developed open-source GIS to support workflows related to municipality planning and development related projects by using open source software
- Analyzed and developed online synchronous-based map sharing application to support real-time map sharing mechanism which enhances public participation during the planning and development related processes.
- Developed the public participation GIS based on Web online asynchronous and synchronous participatory mechanisms

Employer: IT Services Humber College, Canada
Designation: Service Support GIS/RS Analyst

Duration: 2005 to 2006

Worked as a service support GIS/RS Analyst, responsibilities include assisting students who were enrolled in GIS classes with questions pertaining to GIS/RS labs and projects:

- Assisted with small GIS and cartographic research assignments
- Developed designs of GIS-based projects by using UML and CASE tools such as Enterprise Architect, Rational Rose and ESRI Products (Arc GIS etc.)
- Managed spatial database functions including installation of database software, creation/modification of database servers, account set-up, maintenance, access and permissions for GIS related applications

Employer: National Database and Registration Authority (NADRA)

Designation: System Engineer

Duration: 2000 to 2002

Provided training to the staff such as Area Managers, APM and DEOs. Responsible for the product development associated with NADRA. Products included: the Computer National Identity Card; Machine Readable Passport; Child Registration Certificate; National Identity Card for Overseas Pakistani; Pakistan Origin Card:

- Provided advice on project costs, design concepts, or design changes.
- Provided guidelines for implementing secure systems to customers or installation teams.
- Provided technical guidance or support for the development or troubleshooting of systems.
- Monitored system operation to detect potential problems.
- Identified system data, hardware, or software components required to meet user needs.
- Installed and maintained Software packages & Hardware related Task of machine/PC.
- Managed all live databases of National ID card, etc. using SQL server 2000 enterprise manager & Query Analyzer.
- Handled staff in a professional manner by training and coaching work related duties as well as managed the office environment.

Employer: International Computer Management (ICM) Software House

Designation: Software Engineer (Web GIS, MIS)

Duration: 2000 to 2002

Performed object-oriented analyses and design for the development of Web, Web-GIS and MIS related software applications. Products and services included: Feature software for accounts department of organizations; software for public and universities libraries, student registration, hotels reservation; payroll system of companies; Web-GIS development, and new customer services offerings for custom software, installation and engineering:

- Documented and demonstrated solutions by developing design documentation, flowcharts, layouts, diagrams, charts, code comments and clear code.
- Determined operational feasibility by evaluating analysis, problem definition, requirements, solution development, and proposed solutions.
- Developed software solutions by studying information needs; conferring with users; studying systems flow, data usage, and work processes; investigating problem areas; following the software development lifecycle.
- Updated job knowledge by studying state-of-the-art development tools, programming techniques, and computing equipment; participating in educational opportunities; reading professional publications; maintaining personal networks; participating in professional organizations.
- Initiated project, made documentation of Time, Cost & Budget and Risk Management.
- Analyzed and designed the software by preparing USE-CASE & Analysis Model, Data Modeling using Object Oriented Software Engineering (UML).

Employer: International Computer Management (ICM) Software House

Designation: Project Developer

Duration: 1994 to 1999

Delivered software engineering related projects in ICM organization and track outstanding deliverables, milestones and change requests. Moreover, my duties were:

- Developed product development schedules.

- Interlocked schedules as plans with participating teams.
- Followed project status and modify to mitigate risk and ensure success.
- Presented regular project status upgrades to executive management.
- Classified teams, track schedules and resources for every project.
- Tracked external dependencies and alert customers of issues on missing external dependencies.
- Handled multiple enterprise level software projects through entire lifecycle.
- Monitored and enhanced software development, troubleshooting and QA process.
- Liaised between company, customer and several third parties.
- Communicated between customer's management groups and development teams.
- Gathered information from end users regarding company software requirement.
- Designed and implemented the initial documentation required for software building blocks based on customer's need.
- Assisted marketing executives through in house training on how to present software, motivate clients and about marketing techniques.

SCHOLASTIC ROLES AND RESPONSIBILITIES

Institution: Ryerson University, Canada

Designation: Teaching Assistant

Duration: 2002 to 2012

Delivered lectures and course work on the followings topics:

- Geographical Information System (GIS)
- Remote Sensing (RS) and Global Positioning System (GPS)
- Spatial Database Design
- Software Engineering I & II
- Data Structures & Object Oriented Programming Languages
- Operating System Concepts & Design
- C++/Java/PHP/JSP/MapServer Scripting/JavaScripts/JQuery
- Tutorial on CMS (Joomla/Drupal/WordPress)

Institution: IT Services Humber College, Canada

Designation: Lecturer, Faculty of Geographic Information Technology

Duration: 2005 to 2007

Delivered lectures and course work on the followings topics:

- ArcGIS Desktop 9/10, GIS/ RS
- Adobe Macromedia Suite 5/6
- Oracle 9/10
- Unified Modelling Language (UML)
- Object Oriented Techniques using C++
- Mathematics
- Data Structures

Institution: College of Business Administration, Lahore, Pakistan

Designation: Lecturer, Computer Science & Business Department

Duration: 2001 to 2002

- Handled the tasks of teaching concepts like leveraging Database Technologies and Information Systems Design and Development
- Taught concepts of Information Technology, Mathematics and Marketing
- Designed IT courses for example, prepared syllabus and course requirements
- Handled the tasks of establishing the structure and content of discussion sections and grading policies
- Responsible for providing guidelines to students to help them complete course projects

Institution: ILM, Lahore Campus, Pakistan

Designation: Lecturer, IT Department

Duration: 2000 to 2001

- Taught Computer Science and Business studies (i.e., UML, OOSE, Mathematics, C++, and Databases)
- Responsible for guiding students in creating websites and completing assigned projects
- Presented various types of learning materials in the form of audio, books and visual trainings

PUBLICATIONS

- Raza S.M.H., Mehmood A., Batool H., Alvi, S., Waseem F., Jamal T.J., and Butt. M. A. (2017) Temperature based Spatiotemporal Growth Monitoring of Rice Plant From Germination-Ripening Stage using Remote Sensing and GIS Techniques Advances in Remote Sensing
- Mehmood, R., Butt, M.A., Mahmood, S.A. and Ali, F. (2017) Appraisal of Urban Heat Island and Its Impacts on Environment Using Landsat TM in Peshawar, Pakistan. Advances in Remote Sensing, 6, 192-200. <https://doi.org/10.4236/ars.2017.63014>
- Muhammad Asad, Sajid Rashid Ahmad, Farhan Ali, Rashid Mehmood, Muhammd Atif Butt, Sana Rathore Use Of Remote Sensing For Urban Impervious Surfaces: A Case Study Of Lahore (2017) International Journal of Engineering and Applied Sciences (IJEAS) Volume-4, Issue-8, 86-92. https://www.ijeas.org/download_data/IJEAS0408045.pdf
- Butt M.A., Mehmood A (2017) Mineral Rights Management by using GIS Technique. International Journal of Geographical Information Science. In Review
- Javed A., Butt M.A., Mehmood A. (2017) GIS-based mapping of distribution pattern of Dengue; A Case Study of Lahore District, Pakistan. International Journal of Geographical Information Science. In review
- Butt M.A., Atif A., Mehmood A. (2017) Towards the Project Management Practices in Organizations: A Case Study of Public Sector Project Management in Pakistan. International Journal of Geographical Information Science. In review
- Javed A. Butt M.A., Atif A., Mehmood A. (2017) Spatio- temporal study of population and urban growth in Multan using optical remote sensing and GIS. International Journal of Geographical Information Science. In review
- Butt M.A., Atif A., Mehmood A. (2017) Analysis and design of online Web GIS-based Railway Assets Management System. International Journal of Geographical Information Science. In review
- Butt M.A., Jia N., Mehmood A. (2017) Development of a Web GIS-based Saaf-Pani Assets Management System. International Journal of Geographical Information Science. Accepted
- Butt M.A., Jia N., Mehmood A. (2017) Towards a GIS-based LRMIS- Land Record Management Information System: A case of district Lodhran, Pakistan. International Journal of Geographical Information Science. In review
- Butt M.A., Jia N., Mehmood A. (2017) Analysis and Design of Web GIS-based Participatory System for Water and Sanitation Agency, Lahore, Pakistan. International Journal of Geographical Information Science. In Review
- Azeem A., Butt M.A "Assessment of Urban Heat Island (UHI) using Remote Sensing and GIS." Global Journal of Human-Social Science Research Vol 16(2) (2016).
- Najeeb J., Butt M.A. and Siddiqua A. (2016) Recent Catalytic Applications of poly (N-isopropylacrylamide) [p(NIPAM)] Microgels Loaded with Silver Nanoparticles. Imperial Journal of Interdisciplinary Research (IJIR) Vol-ISSN: 2454-1362
- Raza S.M., Mehmood A., Saleem F., Butt, M., Imran S., Tabassum J, and S Shehahzad (2016) FLOOD INNUNDATION MAPPING IN JEHLUM RIVER AND ITS IMPACT ASSESSMENT USING REMOTE SENSING AND GIS TECHNIQUES FOR THE YEAR 2014
- Raza S.M., Mehmood A., Salem F., Butt, M., Azeem M., Kamran M., Ali T., Faiza Z (2016) IMPACT ASSESSMENT OF CLIMATIC VARIABILITY ON RICE PRODUCTIVITY USING REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM TECHNIQUES. Sci.Int.(Lahore),28(5),4507-4511,2016
- Mehmood A., Raza S.M., Saleem F., Butt, M. (2016) Spatiotemporal Monitoring of Urban Sprawl and its Impact Assessment in District Sheikhpura through Remote Sensing and GIS using Satellite Images from 1976-2014.SCIENCE INTERNATIONAL (ISSN 1013-5316, CODEN: SINTE 8) ISI Indexed. In Press
- Mehmood, R., Mehmood, S., Butt, M., Younas, I. and Adrees, M. (2016). Spatiotemporal Analysis of Urban Sprawl and Its Contributions to Climate and Environment of Peshawar Using Remote Sensing and GIS Techniques. Journal of Geographic Information System, 8, 137-148. doi: 10.4236/jgis.2016.82013.
- Butt, M., Mehmood A, Rashid F, & S. Li. Co-PPGIS: A REAL-TIME PARTICIPATORY SPATIAL DECISION SUPPORT TOOL IN EMERGENCY RESPONSE AND DISASTER MANAGEMENT Applied Geomatics, in press.

- Butt, M., Mehmood A, & S. Li. GEOWEBEX: An Open Source Online System for Synchronous Collaboration on Geographic Information Applied Geomatics, in press.
- Butt, M., Mehmood A, & S. Li. Architectural Design and Prototyping of CoPPGIS - a Groupware-based Online Synchronous Collaborative PPGIS to Support Municipality Management Workflows Applied Geomatics, accepted.
- Butt, M., Mehmood A, & S. Li. GIS-enabled real time integrated e-meeting system (GRIES): Preparedness for emergency response to upcoming disaster risk reduction. In review.
- Butt, M., S. Li & N. Javed (2015). Towards Co-PPGIS – a collaborative public participatory GIS-based measure for transparency in housing schemes: a case of Lahore, Pakistan, Applied Geomatics, 8(1) 27-40.
- Butt, M. & S. Li. (2015). UML-based requirement modeling of Web online synchronous collaborative public participatory GIS. Applied Geomatics, 7(4), 203-242.
- Butt, M. & S. Li. (2015). Usability evaluation of collaborative PPGIS-GeoCWMI for supporting public participation during municipal planning and management services. Applied Geomatics, 7(3), 139-161.
- Ahmad S., Khushi S., & M. Butt (2014). GIS based Real time municipality management system (RTMMS). International Journal of Scientific & Engineering Research, 5(1).
- Butt, M. & S. Li (2012) “Developing a web-based, collaborative prototype to support public participation”, Applied Geomatics 4(3): 197-215
- Butt, M. & S. Li (2012) “Open source based online map sharing to support real-time collaboration“, OSGeo Journal2012 (10): 5-14
- Butt, M. & S. Li (2010) “Developing an online PPGIS prototype based on GeoVPMS – a framework for GIS-based virtual public meeting space”, Proc. Joint symposium of ISPRS Technical Commission IV and AutoCarto, 15-19 November 2010, Orlando, USA
- Ibra, H. Butt, M. (2013) REAL TIME INTEGRATED DISASTER MANAGEMENT SYSTEM (RIDMAS). 45th IEP Convention '12, Pakistan
- Khushi, S. Butt, M. (2013) Design and Evaluation of GIS Based Real Time Municipality Management System (RTMMS). 45th IEP Convention '12, Pakistan
- Rashid F., Butt, M. (2013) Emergency Response Geo-Meeting System (ERGMS) - A Real-Time Participatory Spatial Decision Support Tool in Disaster Management. 45th IEP Convention '12, Pakistan

SCHOLARSHIPS AND GRANTS

- Postgraduate Scholarship at Doctoral level from Natural Sciences and Engineering Research Council of Canada (NSERC)
- Department of Civil Engineering, Toronto Ryerson University
- Ministry of Public Security Quebec, Canada

TRAINING COURSES/CONFERENCES ATTENDED

- PMP, Pakistan Institute of Management, Pakistan
- Oracle 12c, ORANet, Pakistan
- CCNA, 2005, Corvit, Pakistan
- MCSE 2003, Nets, Pakistan
- Project Engineering, J2EE/E-Commerce Certificate, Peak4Solution, Pakistan
- Oracle Certification 9i (DBA), Oracle University, Australia

THESIS/RESEARCH WORK

- Development of A Web GIS Based Synchronous Collaborative Platform to Support Public Participation during Municipal Planning
- Analysis and design of a GIS-enabled virtual public meeting space using UML for participatory municipal planning

RELATED PROJECTS ANALYSED AND DESIGNED

Project1: Analysed and designed an approach and a software application to provide a real-time virtual platform for Emergency Response and Disaster Management using Web, Pakistan

Project 2: Developed and Evaluated a Geo-Collaborative approach in controlling Epidemic Spread, Pakistan

Project 3: Developed Application of Web Participatory GIS for urban expansion in Regional Municipality of York, Ontario, Canada

Project 4: Developed a methodology and system application using the Collaborative GIS and *Computer Supported Cooperative Work (CSCW)* approach to support real-time decision making for Ministry of Public Security (MSP), Quebec, Canada

Project 5: Developed a methodology and software application for the computerization of Pakistan Railways Assets and Clean Water Assets Management System, Ministry of Pakistan

Project 6: Developed a methodology and GIS-based software application for the computerization of Pakistan Land Records, Ministry of Pakistan

Project 7: Analysed and Designed a Geo-Collaborative approach and tool for crime mapping, Pakistan

Project 8: Developed and Evaluated a Collaborative Public Participatory GIS (Co-PPGIS) approach to Provide Measures for Transparency in Private Affordable Housing Schemes and Sustainable Master/Land-use Planning

Project 9: Developed and Evaluated a Collaborative Public Participatory GIS to understand that How Well Municipalities are Meeting the Need for Parks, Pakistan

Project 10: Developed a methodology and system application which support Web participatory GIS-based approach to provide measures for Transparency in Private Housing Schemes, Lahore, Pakistan

Project11: Developed a clean Water Assets Management System, Ministry of Pakistan

Project12: Developed a survey analysis tool a virtual dashboard concept for Water and Sanitation consumers using Web GIS and ICT techniques for the Water and Sanitation Agency, Ministry of Pakistan

TECHNICAL COMPETENCE

Software Engineering:	OO Analysis & Design, UML, RUP (Rational Unified Process)
Databases:	Oracle 9i/10g, PostgreSQL, MySQL, SQL, Oracle Spatial, MS SQL Server 2000, MySQL, MS Office DB 2007/10
Case Tool:	Rational Rose, Architect, Visio 2007/10
Operating Systems:	Microsoft Windows (NT, 2000, XP) DOS
Programming Languages and Tools:	UML, C/C++, Advance Programming, Data Structure, Software Eng., SQL, Java, HTML and CASE Tool Rational Rose, Apache Web Server, IIS, ESRI Arc GIS 9.0-10.0, Adobe CS5.5, Flash Builder, Eclipse
Others:	MS Word, MS Excel, MS PowerPoint, and MS Project

PROFESSIONAL MEMBERSHIPS

- International Society for Photogrammetry and Remote Sensing
- American Society of Photogrammetry and Remote Sensing
- Pakistan Society of Geographic Information System

LANGUAGES

- **English:** Excellent
- **French:** Basic
- **Urdu:** Excellent
- **Punjabi:** Excellent