

Areej Fatemah Meghji, Ph.D.

Assistant Professor

Profile

Experienced Software Engineer with skills in Machine Learning, Educational Data Mining, and Reinforcement Learning, with a focus on gaming and complex data-driven applications. Skilled in using advanced computational techniques to uncover patterns and drive innovation.

Personal Information

Address	Department of Software Engineering, Mehran University of Engineering and Technology 76062 Jamshoro (Pakistan)
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Google Scholar	https://scholar.google.com.pk/citations?user=pXvPPWkAAAAJ&hl=en&oi=ao
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ORCID	https://orcid.org/0000-0002-7302-2767
ResearchGate	https://www.researchgate.net/profile/Areej-Meghji

Work Experience

Assistant Professor

Dates	15 April 2013 - till date
Main activities and responsibilities	Teach undergraduate and post-graduate engineering students; conduct independent and collaborative research; supervise and mentor graduate and undergraduate students; serve as a member of various committees (FYP, SAR, OBE, IPT) contributing to curriculum development, program evaluation, and accreditation processes.
Name and address of employer	Mehran University of Engineering and Technology 76062 Jamshoro (Pakistan)

Lecturer

Dates	16 February 2009 - 14 April 2013 (4 years and 2 Months)
Main activities and responsibilities	Prepared and delivered lectures/practicals to undergraduate software engineering students; supervised and mentored undergraduate students
Name and address of employer	Mehran University of Engineering and Technology 76062 Jamshoro (Pakistan)

Lecturer (Contract)

Dates	19 July 2008 - 15 February 2009 (7 Months)
Main activities and responsibilities	Prepared and delivered lectures / practical to undergraduate software engineering students
Name and address of employer	Mehran University of Engineering and Technology 76062 Jamshoro (Pakistan)

Education

Ph.D.	Software Engineering (CGPA 4.00 / 4.00)
Dates	January 2016 - March 2022
Ph.D. Thesis	Design of a Data Mining Model for Predictive Analysis of Data Emerging from the Sector of Higher Education
Principal areas covered	Educational Data Mining - Artificial Intelligence - Data Science - Machine Learning
Organisation providing education and training	Mehran University of Engineering and Technology 76062 Jamshoro (Pakistan)

Master of Engineering	Information Technology (CGPA 4.00 / 4.00)
Dates	January 2009 - December 2011
M.E Thesis	The Implications of Social Networking on the People of Pakistan
Principal subjects/skills covered	Software Engineering - Web Design and Development - Neural Networks
Organisation providing education and training	Mehran University of Engineering and Technology 76062 Jamshoro (Pakistan)
Bachelor of Engineering	Software Engineering (CGPA 3.96 / 4.00)
Dates	December 2003 - April 2008
B.E Thesis	eBusiness Solution for Al-Abbas Enterprise
Principal subjects/skills covered	Software Engineering - Artificial Intelligence - Project Management - Computer Programming - Web Engineering
Organisation providing education and training	Mehran University of Engineering and Technology 76062 Jamsohro (Pakistan)

Responsibilities / Activities

Teaching	- Successfully managed and instructed courses, including: - B.E: Agent-based Intelligent Systems Data Science and Analytics Multimedia Communication Visual Programming Operating Systems Data Structures and Algorithm Analysis - M.E: Research Methodology Data Mining Methods - Ph.D: Big Data Analytics Intelligent Software Systems - Developed Curricula, projects, and assignments for courses - Created and administered comprehensive exams to evaluate student performance
Departmental Responsibilities	- Co-ordinator / Editor Graduate Directory (Aug 2024 - till date) - Convener Final Year Project Committee (Jan 2022 - till date) - Member / Invitee Dept. Management Review Committee (July 2023 - till date) - Convener Self Assessment Review Committee (2013-2016, 2025 - Jan 2026) - Member Outcome-Based Education Committee (Jan 2025 - till date) - Invitee Industrial Advisory Board (2010-2016, 2023 - till date) - Special Invitee Board of Studies (Jan 2023 - till date) - Member Research Grant Committee (Aug 2023 - March 2025) - Class Advisor - 18SW (July 2023 - Dec 2024) - ISO Quality Co-ordinator (2010 - 2016)
International Collaboration	- International Collaborative Partner of Universiti Tunku Abdul Rahman (Malaysia) Global Research Network (UTAR GRN) (Jan 2025 - till date)
Institutional Activities	- Conference Secretary - 1st International Conference on Innovations in Information and Communication Technology (IICT'26) <i>Successfully managed IICT'26, including winning the Sindh HEC Grant of 2 Million, getting IEEE indexing, and facilitating the collaboration with UTAR Malaysia.</i> - Member Institutional Program Team - Department of Software Engineering - ISO / Quality Coordinator - Office of the Dean, Faculty of Electrical, Electronic and Computer Engineering (FEECE) July 2025 - till date - Member Organizing Body - Technival Expo'25 (2025) - Member Board of Studies - BS AI (Dec 2025 - till date) - Focal Person - Grand Software Champ Camp (2015) - Member Organizing Body - IEEE Explosion' 14 (2014) - Focal Person - Open Day Project Exhibition (2010 - 2015)

Keynote / Invited Talks / Workshops

Title of the delivered keynote, conducted training/ workshop and name of the organizing body

- Workshop on LaTeX - Department of SWE, MUET (7th August 2025)
- Expert Panelist - Hacktober Fest Hackathon - AWS, USPCAS MUET (20th - 21st Oct 2025; 21st - 22nd Oct 2024)
- Speaker - Journey to Data Science Mastery - 2 Day Bootcamp - MLSA MUET (12th-13th Aug 2024)
- Speaker - Neural Networks in Action: From Algorithms to Applications for Engineers - NFC Institute, Faisalabad with IEEE WIE (4th March 2024)
- Speaker - ThoughtLab Session on 'Navigating the AI Revolution' (19th September 2023)
- Session Chair: Entrepreneurship - NUML University (15th Dec 2022)
- Speaker - Artificial Intelligence: Discovering the Future (Awareness Seminar on Artificial Intelligence for Sustainable Development (17th November 2021)

Training and Workshops

Title of Training/Workshop and Name of the organisation providing education and training

- Training: **Instructor Training to introduce the Turnitin Feedback Studio** – HEC, Pakistan (09-09-2025)
- Workshop: **Designing Future-Ready Technical Modules: Reimagining technical module design to align with future industry demands** - Dublin City University, Ireland, in coordination with ORIC, MUET (14-07-2025 to 15-07-2025)
- Training: **Power User in Locating Technical Resources: An in-depth dive with IEEE Xplore Digital Library** - IEEE (03-07-2025)
- Training: **Mastering OBE Implementation and Bloom's Taxonomy: Enhancing Learning Outcomes** - SWE, MUET (28-11-2024)
- Workshop: **Data Science Strategies to Analyze the Impact of Transportation and Infrastructure on the Environment** - IEEE Advancing Technology for Humanity (09-05-2024)
- Training: **Another Learning experience: Broaden your horizon with IEEE eLearning courses** - Manager Client Services for Asia - IEEE (07-05-2024)
- Workshop: **Outcome-Based Education System** under the Continuing Professional Development Program - 1 CPD (11-09-2023)
- Research Training: **An in-depth dive with IEEE Xplore Digital Library** by IEEE (08-03-2023)
- Author Workshop: **How to Publish in Wiley Open Access Journals** by Wiley in collaboration with HEC Pakistan (08-12-2022)
- Research Training: **Accessing Wiley Journals and Publication Tips for Authors and Researchers** by Wiley in collaboration with HEC Pakistan (31-10-2022)
- Workshop: **Empowering knowledge on ethical publishing: Mastering the art of identifying predatory, fake, and cloned journals** by Elsevier in collaboration with HEC Pakistan (08-06-2022)
- Research Training: **From Research to Publication: An Overview of IEEE Publication Process** by IEEE (23-02-2022)
- Workshop: Two-day workshop on **Promoting Research Excellence in Academics across Pakistan** by Elsevier in collaboration with HEC Pakistan (01-02-2022 to 02-02-2022)
- Workshop: **Blockchain for Integrity of Supply Chains** - Continuing Professional Development by PEC (2021)
- Workshop: **Semantic Technologies and Linked Data Meet Web of Things**. (2018)
- Indigenous on-campus training: **Quality Assurance and Stock Management** by the Office of Research, Innovation & Commercialization in collaboration with HEC. (2014)
- Training: **IBM RFT, RPT, and Requist Pro Software Packages** by Avanza Solutions. (2010)
- Workshop: 2-Day **OpenStack Workshop** by xFlow Research Inc. (2010)

Skills and Competencies

Computer skills and competencies

- Machine Learning (Classification, Clustering, Association Rule Mining, Pattern Mining)
- Data Mining (Weka, RapidMiner, Python)
- Data Manipulation and Analysis: Pandas, NumPy, data cleaning, feature engineering
- Game Playing and Reinforcement Learning
- Natural Language Processing (Text preprocessing, tokenization, sentiment analysis)
- Statistical Analysis (SPSS, GraphPad Prism)
- Programming Languages (Python, C++, Java, C#, VB.Net)
- Relational Databases (Microsoft Access, MySQL, Oracle)
- LaTeX and Office Automation Tools (Word™, Excel™, PowerPoint™)

Organizational skills and competencies

- Skilled at managing inter-department and department-level events
- Skilled to work in a team as a member as well as manage a team as a lead
- Proficient at public speaking
- Remained group lead in academic projects

Professional courses

- Overview of Data Visualization - Coursera (02-06-2024)
- Research Methodology - 20 Webinar Series by the Center for Learning & Teaching (CLT) at Forman Christian College, Lahore (FCCU) (03-06-2024 to 31-07-2024)
- Python for Data Science and Machine Learning (2018)

Other skills, achievements, and competencies

- PhD scholarship - Endowment Fund for Sustainable Development, MUET Pakistan
- Merit Medal and Certificate on obtaining 1st Position in B.E (Software Engineering) from MUET, Jamshoro
- Merit Awards each year during B.E from MUET, Jamshoro
- Merit Award in H.S.C from B.I.S.E Hyderabad

Mother tongue

Gujrati

Other language(s)

Self-assessment

European level (*)

English

Urdu

Farsi

Sindhi

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user
C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user
A1	Basic User	A1	Basic User	A1	Basic User	A1	Basic User	A1	Basic User
A1	Basic User	A1	Basic User	A1	Basic User	A1	Basic User	A1	Basic User

(*) [Common European Framework of Reference \(CEF\) level](#)

Research

Research Publications Journal

1. Shaikh, F. B., **Meghji, A. F.**, Dahri, N. A., Kalhoro, M., Ayyasamy, R. K., & Subramaniam, S. (2025). Predicting Cyber-Harassment in the Digital Age: An Integrated Model of Psychological, Technological, and Environmental Factors Using SEM. *Iran J Comput Sci*, 8, 2815-2840.
2. Qadir, R., **Meghji, A. F.**, Mahoto, N. A. (2025). Clustering Student Performance: A Data-Driven Approach to Monitor Academic Success. *Journal of Computing & Biomedical Informatics*, 10(1).
3. Shaikh, Y., **Meghji, A. F.**, Jumani, Z., & Jatoti, M. (2025). Auscultation-Based Pulmonary Disease Detection and Classification Using Deep Neural Networks. *International Journal of Innovations in Science & Technology*, 7(4), 2630-2645.

4. Bashir, F., Marvi., Kumar, R., Leghari, S., **Meghji, A. F.**, & Wadho, S. A., Predicting Suicidality Indicators from Depression Symptom Checklists Using Interpretable Machine Learning, *Journal of Information Communication Technologies and Robotic Applications (JICTRA)*, 16(1), 2025.
5. Muskan, **Meghji, A. F.**, A. A. Khoso. (2025). IntelliSite AI: A Unified AI-Augmented Web Development Environment with Real-Time Code Preview and Design Automation. *Spectrum of Engineering Sciences*, 3(11), 86-103.
6. Ahmed, F., Ghafoor, K., **Meghji, A. F.**, & Baloch, Z. (2025). RidePool: A Dynamic Ride-Sharing Application. *Pakistan Journal of Engineering and Technology*, 8(3), 1-9.
7. Ali, A., & **Meghji, A. F.** (2025). Text2Blend: A Framework for Generating Blendshapes for Facial Animation from Textual Input. *Sukkur IBA Journal of Computing and Mathematical Sciences*, 9(1), 11-25.
8. Mirza, M. A., Lahad, A., & **Meghji, A. F.** (2025). A Study of Q-Learning in the Taxi-v3 Environment: Reinforcement Learning for Optimal Navigation through Hyperparameter Optimization. *KIET Journal of Computing & Information Sciences*, 8(1), 54-65.
9. Meghwar, H. K., & **Meghji, A. F.** (2025). An ACID-BASE Analysis of NoSQL Database Structuring Models for Efficient Data Management. *VAWKUM Transactions on Computer Sciences*, 13(1), 278–289.
10. Qureshi, P. H. A., **Meghji, A. F.**, & Jaffari, R. (2025). Mobile Legends Win Rate Prediction and Team Recommendation Using Switched Hero Roles. *International Journal of Innovations in Science & Technology*, 7(1), 623–636.
11. Raza, M. O., **Meghji, A. F.**, Mahoto, N. A., Al Reshan, M. S., Abosaq, H. A., Sulaiman, A., & Shaikh, A. (2024). Reading Between the Lines: Machine Learning Ensemble and Deep Learning for Implied Threat Detection in Textual Data. *International Journal of Computational Intelligence Systems*, 17(1), 183.
12. Kumari, V., **Meghji, A. F.**, Bhatti, S., Agha, D., (2024). Analyzing Temporal Variations and Public Sentiment on X: A Clustering Analysis of the 2024 Pakistan Elections. *Journal of Information Communication Technologies and Robotic Applications*, 15(1), 1-16.
13. Kumari, V., **Meghji, A. F.**, Shaikh, F. B., Qadir, R., & Oad, U. (2024). A Review of Classification Approaches in Educational Data Mining for Predicting Student Performance. *VAWKUM Transactions on Computer Sciences*, 12(2), 65–80.
14. Agha, D., Kumari, V., & **Meghji, A. F.** (2024). Enhancing Mobile Efficiency: A Cloud-Powered Paradigm for Extended Battery Life and Enhanced Processing Capabilities. *International Journal of Innovations in Science & Technology (IJIST)*, 6(1), 481-492.
15. Kumari, V., **Meghji, A. F.**, Qadir, R., Oad, U., & Shaikh, F. B. (2024). Predicting Student Performance Using Educational Data Mining: A Review. *KIET Journal of Computing and Information Sciences (KJCIS)*, 7(1), 42-58.
16. **Meghji, A. F.**, Mahoto, N. A., Asiri, Y., Alshahrani, H., Sulaiman, A., & Shaikh, A. (2023). Early detection of student degree-level academic performance using educational data mining. *PeerJ Computer Science*, 9, e1294.
17. Agha, D., **Meghji, A. F.**, Bhatti, S., & Memon, M. (2023). Educational Data Mining in Outcome-Based Education: An Analysis of Predictive Models for Program Learning Outcome Attainment. *VAWKUM Transactions on Computer Sciences*, 11(2), 123–138.
18. **Meghji, A. F.**, Shaikh, F. B., Wadho, S. A., Bhatti, S., & Ayyasamy, R. K. (2023). Using Educational Data Mining to Predict Student Academic Performance, *VFAST Transactions on Software Engineering*, 11(2), 43-49.
19. Qadir, R., **Meghji, A. F.**, Oad, U., & Kumari, V. (2023). Exploring Learning Patterns: A Review of Clustering in Data-Driven Pedagogy. *International Journal of Innovations in Science & Technology (IJIST)*, 5(4), 831-846.

20. Kumar, R., **Meghji, A. F.**, Wadho, S. A., Shaikh, F. B., Shaikh, U., & Ayyasamy, R. K. (2023). Implementation and Challenges in Cloud Computing. *JOURNAL OF INFORMATION & COMMUNICATION TECHNOLOGY*, 17(2), 81-88.
21. Agha, D., **Meghji, A. F.**, & Bhatti, S. (2023). Clusters of Success: Unpacking Academic Trends with K-Means Clustering in Education. *VFAST Transactions on Software Engineering*, 11(4), 15-31.
22. Wadho, S. A., **Meghji, A. F.**, Yichiet, A., Kumar, R., & Shaikh, F. B. (2023). Encryption Techniques and Algorithms to Combat Cybersecurity Attacks: A Review. *VAWKUM Transactions on Computer Sciences*, 11(1), 295-305.
23. Umar, A., Bhatti, S., **Meghji, A. F.**, Mahoto, N. A., & Kumari, S. (2023). Analysis of Frequent Nucleotide Patterns in COVID-19 Genome Sequences Using SPM Algorithms. *Xi'an Shiyu Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyu University*, 66, 96-109.
24. Agha, D., Sohail, R., **Meghji, A. F.**, Qaboolio, R., & Bhatti, S. (2023). Test Driven Development and Its Impact on Program Design and Software Quality: A Systematic Literature Review. *VAWKUM Transactions on Computer Sciences*, 11(1), 268-280.
25. Saeed, S., Faiz, S., & **Meghji, A. F.** (2023). LeafNet: Using Convolutional Neural Network for Plant Leaf Detection. *VFAST Transactions on Software Engineering*, 11(2), 50-57.
26. Bhatti, S., Memon, M., & **Meghji, A. F.** (2023). Scrutinizing Outcome Assessment of Outcome-based Education using Q-OBE in Engineering Education. *International Journal of Innovation in Teaching and Learning (IJITL)*, 9(1), 55-74.
27. Mangrio, I. K., Dewani, A., **Meghji, A. F.**, & Bhatti, S. (2023). Agent-based Modeling of COVID-19: A case study of Hyderabad city. *VFAST Transactions on Software Engineering*, 11(1), 76-84.
28. Memon, U., **Meghji, A. F.**, Memon, M. A. (2021). Carbon Footprint Analysis and Prediction: A Case Study of Mehran University of Engineering and Technology, Pakistan. *Engineering Science and Technology International Research Journal (ESTIRJ)* 5(4), 6-10.
29. **Meghji, A. F.**, Mahoto, N. A., Unar, M. A., & Shaikh, M. A. (2020). The role of knowledge management and data mining in improving educational practices and the learning infrastructure. *Mehran University Research Journal of Engineering & Technology*, 39(2), 310-323.
30. **Meghji, A. F.**, Mahoto, N. A., Unar, M. A., & Shaikh, M. A. (2019). Predicting student academic performance using data generated in higher educational institutes. *3c Tecnología: glosas de innovación aplicadas a la pyme*, 8(1), 366-383.
31. Nizamani, S., Memon, M., Sheikh, M. A., & **Meghji, A. F.** (2017). S2N: Safe Satellite Navigator. *International Journal of Future Generation Communication and Networking*, 10(10), 33-40.

Research Publications Conference

1. Raza, M. O., & **Meghji, A. F.** (2025). Anthropomorphizing AI: A Multi-Label Analysis of Public Discourse on Social Media. In *The first Interdisciplinary Workshop on Observations of Misunderstood, Misguided and Malicious Use of Language Models – International Conference on Recent Advances in Natural Language Processing (RANLP 2025)*, Varna, Bulgaria.
2. Jaffari, R., **Meghji, A. F.**, Rasool, H. M., & Rubab, S. (2025). From Data to Decarbonization: Leveraging AI for the Rational Design of Carbon Capture Nanomaterials. In *International Conference on Applications of Space Science and Technology (ICAST 2025)*, Islamabad, Pakistan

3. Soomro, M. A., Bhatti, S. & **Meghji, A. F.** (2022). Analyzing Temperature and Rainfall Effects on Crop Yield using Data Mining. In the *3rd International Conference on Computational Sciences And Technologies (INCCST'22)*.
4. Memon, U., **Meghji, A. F.**, Memon, M. A., & Raza, O. (2022). Ecological Footprint Analysis in Academia: A Case Study of Mehran University of Engineering and Technology. In *Energy, Environment and Sustainable Development (EESD2022)*.
5. Kouser, F., **Meghji, A. F.**, & Mahoto, N. A. (2020). Early Detection of Failure Risks from Students' Data. In *2020 International Conference on Emerging Trends in Smart Technologies (ICETST)*, pp. 1-6. IEEE.
6. Taj, S., Shaikh, B. B., & **Meghji, A. F.** (2019, January). Sentiment analysis of news articles: a lexicon based approach. In *2019 2nd international conference on computing, mathematics and engineering technologies (iCoMET)* (pp. 1-5). IEEE.
7. **Meghji, A. F.**, Mahoto, N. A., Unar, M. A., & Shaikh, M. A. (2018, April). Analysis of student performance using EDM methods. In *2018 5th International Multi-Topic ICT Conference (IMTIC)* (pp. 1-7). IEEE.

Research Publications Book Chapters

1. Zubair, A., Bhatti, S., & **Meghji, A. F.** (2024). Application of Deep Learning for Predicting the Financial Position of Pakistani Banking Sector. In *New Trends in Finance* (pp. 28-51). All Sciences Academy.
2. Shah, H., **Meghji, A. F.**, & Mahoto, N. A. (2018). Healthcare Services in Developing Countries of the South Asian Region: Present and Future Perspectives. In *Design and Development of Affordable Healthcare Technologies* (pp. 1-22). IGI Global.
3. **Meghji, A. F.**, & Mahoto, N. A. (2016). Using big data to improve the educational infrastructure and learning paradigm. In *Effective big data management and opportunities for implementation* (pp. 158-181). IGI Global.

Research Grants

- Leveraging AI for The Design of Advanced Carbon Capture Nano Materials - shortlisted in the 5th Forum for Women in Research "QUWA: Together Innovating to Shape the Future" Sharjah
- Designing Next-Generation Carbon Capture Nanomaterials Using AI - submitted NRPU Call 2024-2025

Thesis/Project Supervision

- Under-Graduate: 27 Undergraduate Dissertations/Projects supervised, 3 Projects Dissertations/Projects in-progress
- Post-Graduate: 15 Dissertations supervised, 7 Research Dissertations in-progress