CURRICULUM VITAE

Department of Mathematics,
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Prof. Dr. MIRZA MAHMOOD BAIG
HEC APPROVED SUPERVISOR

Educational Profile:

2005-2009
PhD in Computer Science, **NED University of Engineering & Technology**, Karachi Pakistan.
Thesis title: **"A New Software Testing Strategy"**

1995-1998
MS (Computer Science), (First Division) Department of Computer Science & IT, NED University of Engineering & Technology, Karachi.

1990-1992
M. Sc (Mathematics), (First Class First), University of Karachi.

1986-1989
B. Sc (Mathematics, Physics, Statistics), (First Division). University of Karachi.

Teaching/ Professional   **(30 years Approx.)**

Experience: **Professor & Chairman** Department of Mathematics,
NED University of Engineering & Technology, Karachi
(From Ist July 2010 to-date)

Associate Professor & Co-Chairman Department of Mathematics
NED University of Engineering & Technology, Karachi. Pakistan
(From 2nd Nov 2009 to 30 June 2010)

Assistant Professor Department of Mathematics & Basic Sciences
NED University of Engineering & Technology, Karachi Pakistan
(From 18th June 2001 to 1st Nov 2009)

Lecturer Department of Mathematics & Basic Sciences
NED University of Engineering & Technology, Karachi Pakistan
(From 10th Dec 1996 to 17th June 2001)

Lecturer Sir Syed University of Engineering & Technology, Karachi Pakistan.
(From 1995 to 1996)

Cooperative Teacher (Full Time) University of Karachi, Pakistan
(From 1993 to 1995).

Research Experience:

Ph.D Level Supervision (Successfully Completed)

- As Principal Supervisor, Supervised Ms Huma Nergis Aleem thesis titled, "Efficient Software testing based on Hybrid Hypothetical-Traditional Database Execution Approach" in CS & IT department NEDUET 2019.
- As Principal Supervisor, Supervised Ms Kashif Ali thesis titled, "Unsteady Magneto hydrodynamic(MHD) Non-Newtonian Fluid Flows in Porous Medium Approach" in Mathematics Department NEDUET 2018.
- As Co-supervisor, Supervised Ms Hira lodi research scholar in Mathematics department NEDUET
- As Co-supervisor, Supervised Mr Muhammad Imran research scholar in CSIT department NEDUET 2022
- As Co-Supervisor, Supervised Mr Tauqeer Hashmi research scholar in Mathematics department NEDUET 2023

Ph.D Level Supervision (in Progress)

- As Co-Supervisor, Supervising Ms Humaira Altaf research scholar in Mathematics department NEDUET.
- As Supervisor, supervising Mr Amin research Scholar in Mathematics department NEDUET
- As Supervisor, supervising Ms Mehwish soomro research Scholar in Mathematics department NEDUET
- As Co-Supervisor, supervising Ms Komal Batool research Scholar in Mathematics department NEDUET

MS Level Supervision (Successfully Completed)

- As Supervisor, supervised Mr. Obaid ur Rehman for his Independent Study Project titled, "Smartphone Employee Tracking & Chat" 2012.

- As Supervisor, supervised Ms. Eraj for her Independent Study Project titled, "Modification of Shimble's method to solve the Shortest Path problems" 2013

- As Supervisor, supervised Ms. Qurat-ul-Ain for her Independent Study Project titled, "Using Regression Testing in Test suite for Validation" 2013

- As supervisor, supervised Ms Samreen Zaman for her Independent Study Project, titled, "Estimation of shortest path in social networks graphs/sociogram" 2014

- As Co-Supervisor, supervised Ms. Noor Fatima Siddiqui for her Independent Study Project titled, "To study Large Time Step High Resolution Schemes for Hyperbolic Conservation Laws",2013.

- As Co-supervisor, supervised Mr Muhammad Ashhad Shahid for his Independent Study Project titled, "Joint Time Frequency Filtering of Non-Stationary Signals", 2014.

- As Co-supervisor, supervised Ms Ubaida Fatima for her Independent Study Project titled, "A modified Google Webpage Ranking: An Application to Computational Linear Algebra", 2014

- As Supervisor, supervised Ms. Samreen Ahmad for her Independent Study Project titled, "Extended homotopy analysis method for system of non-linear equations", 2015

- As Co-supervisor, supervised Syed Safar Hussain for his Independent Study Project titled, "Security and performance Analysis of Quantum Key Distribution Protocols", 2015

- As Co-supervisor, supervised Mr Rafiq Ahmed for his Independent Study Project titled, "Numerical Simulation of High Speed Separated Flows", 2015.

- As Supervisor, supervised Mr. Mansoor Ahmad khan for his Independent Study Project titled, "CFD Prediction of non-isothermal flows how to minimise the user factor", 2016

- As Co-supervisor, supervised Mr Amir for his Independent Study Project titled, "Developing a mathematical Model for Urban Area Solid waste management", 2016

- As Co-supervisor, supervised Ms Faiza Shahid for hes Independent Study Project titled, "Variation in Aerodynamic-Coefficient with Altitude", 2016

- As Supervisor, supervised Ms. Shinza Jabeen for her Independent Study Project titled, "Applicatio of Shortest Path Algorithm in Social Network", 2018

- As Supervisor, supervised Ms. Sidra Raees for her Independent Study Project titled, "Applications of Min-sum Algebra Technique in Linkedin Social Network", 2018

- As Supervisor, supervised Ms. Umme ammarah for her Independent Study Project titled, "To Study Shortest Path Algorithm Used in Facebook for Directed Graph", 2018

- As Supervisor, supervised Ms. Onaiza Ali for her Independent Study Project titled, "Creation of Optimal path Using Shimbel;s Method in Google Page Rank", 2018

- As Supervisor, supervised Muhammad Asad for his thesis titled, "Application of Generalised Linear Model (GLM) in Finance", 2022

- As Supervisor, supervised Muhammad Saqib Nauman for his thesis titled, "Mathematical Modelling of Marine corrosion on Mild and Galvanized steel at Karachi", 2023

- As Supervisor, supervised Muhammad Arshad Khan for his thesis titled, "Quantification of Resistance in High Speed Marine Vessel Using Computational Fluid Dynamics", 2023

List of Research Publications:

1. M. M. Baig and A. A. Khan, "Formal Testing of Requirements Specifications", Pakistan Journal of Scientific Research, International Council for Science (ICUS), Paris, France, since 1950, Vol. 60, No. 3-4, September 2008**. (HEC recognised**).

2. M. M. Baig and A. A. Khan, "A Formal Technique for Reducing Software Testing Time Complexity", International Joint Conferences on Computer, Information and Systems Sciences, and Engineering, CISSE 2008 Book Proceedings will be sent by Springer-Verlag, Innovations and Advanced techniques in Computer and Information Sciences and Engineering August 2009. (Peer reviewed)

3. M. M. Baig and A. A. Khan, "Plummeting the Software Testing Time Complexity", Conference proceeding will be Published by IEEE Computer Society, CSIE 2009. (Peer reviewed).

4. M. M. Baig and A. A. Khan, "Efficient Testing of Database Applications", IJCSNS International Journal of Computer Science and Network Security, Vol.9 No. 4, 2009. (Peer reviewed).

5. M. M. Baig and A. A. Khan, "Formal Notation for Metric Space Based Software Testing Strategy", International Journal of Latest Trends in Computing (IJLTC), 2011(Peer reviewed).

6. M. M. Baig, A. Shaheen and A. A. Khan, "Efficient Execution Plan for Hypothetical Database Testing", International Journal of Latest Trends in Computing(IJLTC), 2011 (Peer reviewed).

7. M. M. Baig, and A. A. Khan, "Metric Space Based Software Testing Tool", International Journal of Latest Trends in Software Engineering (IJLTSE), 2011 (Peer reviewed).

8. M. M. Baig, and A. A. Khan, "Database Testing Application for Modifying Tuples Hypothetically", NED Journal of Research, 2012. (HEC recognised).

9. M. M. Baig and A. A. Khan, "A Formal Software Testing Technique", Pakistan Journal of Science, Vol. 63 No. 4. 2011(**HEC recognised 'Y'**).

10. Fareed A., Ansar A. Khan, Mahmood B. and Shamsul H.," Intelligent Decision Making Technique for Marketing Using Hypothetical Database and Fuzzy-Criteria Method", Journal of Basic & Applied Sciences p-44-51, 2013. **(HEC recognised 'Y'**).

11. Najeed A. Khan, Syed Shah Sultan Mohiuddin, Mirza Mehmood Baig and Twaha Ahmed Minai, "Statistical Analysis of Constraints Acquiring Higher Secondary Education", International Journal of Database Theory and Application Vol.7, No.2 (2014), pp.141-154, 2014. **(Peer reviewed) Foreign Journal (Ulrich)**

12 Dr. Tahseen Jilani, Ubaida Fatima, Mirza Mahmood Baig, "A Survey and Comparative Study of Different PageRank Algorithms", International Journal of Computer Applications, Foundation of Computer Science New York, USA,2015**(Peer Reviewed) Foreign Journal (Ulrich)**

13 Mirza Mahmood Baig and Samreen Zaman," Efficient shortest path estimation in social network", International Journal Multidisciplinary Current Research (IJMCR), (Peer reviewed) September **2015 (Peer Reviewed) Foreign Journal**

14 Noor Fatima Siddiqui, Mukkarum Hussain, Mirza Mahmood Baig, "To Study Large Time Step High Resolution Low Dissipative Schemes for Hyperbolic Conservation Laws", Journal of Applied Fluid Mechnics (JAFM), **ISI(JCR) (Thomson Reuters) (I. F=0.888),** June **2016,** (**HEC Recognised 'W' category).**

15 Mirza Mahmood Baig and Eraj Shahbaz, "Creation of Optimal Path using Min-sum Algebra", International Journal of Multidisciplinary Current Research (IJMCR), **(Peer reviewed) Foreign Journal** November **2015**

16 Dr. Tahseen Jilani, Ubaida Fatima, Mirza Mahmood Baig, "Fuzzy-page Ranking for Google Search Engine", International Journal of Computer Science Issues, 2015**(Peer Reviewed) Foreign Journal.**

17 Rafique Ahmed, Mukkarum Hussain, Mahmood Baig, Ihtram ul Haq, "Numerical Simulation of High Speed Separated Flows", Journal of Space Technology, Volume-VI, No.1, July 2016. **(HEC Recognised 'Y' category)**

18 Samreen Ahmad & Mirza Mahmood Baig, "Extended homotopy analysis method for system of non-linear equations", International Journal of Mathematical Sciences, IF=2.31, 2016, **(Peer Reviewed) Foreign Journal**

19 M. M. Baig, M. M. Khan, O. K. Shirwani, "Cross-Platform Message Communication Framework", Sindh University Research Journal (SURJ), **2016**. **(Accepted)** **(HEC Recognised 'X' category)**

20 Talha Akhtar, Mirza Mahmood Baig," New Artistic Approach for Shortest Path by using Swarm Intelligence" Science International Journal, (ISI),2016. **(HEC Recognised 'Y' category)**

21 Madiha Imdad, Mukkarrum Hussain, Mirza Mahmood Baig, Tabinda Kanwal, "CFD Modeling of Thrust Vector Control through Jet Vane', Science International Journal, (ISI),**2016**. **(HEC Recognised 'Y' category).**

22 Kashif Ali Abro, Mukarrum Hussain and Mirza Mahmood Baig, " Impacts of Magnetic Field on Fractionalized Viscoelastic fluid", Journal of Applied Environmental and Biological Sciences, (JAEBS) **(ISI) Thomson Reuters**, September **2016**.

23 Tabinda kanwal, Mirza Mahmood Baig, Mukkarrum Hussain, Madiha Imdad, "Aerodynamic performance prediction of Wind Turbine Airfoil through CFD", Science International Journal, (ISI)**, 2016**. (**HEC Recognised 'Y' category**)

24 Safder Hussain, M Mubashir Khan and Mirza Mahmood Baig, "Numerical Modeling of Quantum Key Distribution System for KMB09 Protocol, Intl. Journal of Comp. Sc. and Information Security (IJCSIS), **(ISI) Thomson Reuters**,Vol. 14, No. 8 August, **2016**.

25 Safder Hussain, M Mubashir Khan and Mirza Mahmood Baig, "Optomechanical Simulation of QKD System, Intl. Journal of Comp. Sc. and Information Security (IJCSIS), **(ISI) Thomson Reuters**, Vol. 14, No. 11, November **2016**.

26 Kashif Ali Abro, Sumera Dero and Mirza Mahmood Baig, "Effects of Transverse Magnetic Field on Oscillating Plate of Second Grade Fuild", Sindh University Research Journal (SURJ), August, **2016** (**HEC Recognised 'X' category**)

27 Kashif Ali Abro, Zubair Ahmed Kalhoro, Mirza Mahmood Baig, Rajab Ali Malookani, "Impacts of Permeability on Oldroyd-B Fuild in the Absence of Slippage", Science International Journal, (ISI), **2016**. (**HEC Recognised 'Y' category**)`

28 Kashif Ali Abro, Mukarrum Hussain and Mirza Mahmood Baig, "Slippage of Fractional Oldroyd-B Fluid with Magnetic Field in Porous Medium", Progress in Fractional Differentiation and Applications: An International Journal **Peer Reviewed**, Volume 3(1), 69-80, **2017**.

29 Kashif Ali Abro, Mukarrum Hussain, Mirza Mahmood Baig and Khalil-ur-Rehman Channa "Flow of Generalized Burger's Fluid in Rayleigh Stokes Problem", Journal of Applied Environmental and Biological Sciences, (JAEBS), TEXTROAD, **(ISI Indexed Thomson Reuters)**, 7(5)1-1, **2017**.

30 Kashif Ali Abro, Mukarrum Hussain and Mirza Mahmood Baig, "Analytical Solution of MHD Generalized Burger's Fluid Embedded with Porossity, International Journal of Advanced and Applied Sciences, **(ISI Indexed) 2017.**

31   Faiza Shahid, Mukkarrum Hussain, Mirza Mahmood Baig, Ihtram ul Haq, "Variation in Aerodynamic Coefficients with Altitude", Elsevier IF 1.337, **ISI** Results in Physics **(JCR)** 7 (2017) 1261-1273. (**HEC Recognised 'W' category).**

32   Fareed Ahmad, Ansar Ahmed Khan, Mirza Mahmood Baig, "Weighting of Marketing Mix Elements Using Fuzzy Analytic Hierarchy Process and Area Based Ranking of Fuzzy Numbers", NED Journal of Research, March 2017, (**HEC Recognised 'X' category).**

33   Kashif Ali Abro, Mukarrum Hussain and Mirza Mahmood Baig, "An Analytic Study of Molybdenum Disulfide Nanofluids Using Modern Approach of Atangana-Baleanu Fractional Derivatives", European Physical Journal Plus, 2017. (**HEC Recognised 'W' category).**

34   Kashif Ali Abro, Sumera Dero and Mirza Mahmood Baig, "A Mathematical Analysis of Magnetohydrodynamic Generalized Burger Fluid for Permeable Oscillating Plate", Punjab university Journal of Mathematics, 2018 (**HEC Recognised 'X' category).**

35   Humma Nargis, Mirza Mahmood Baig, Muhammad Mubashir Khan, "Efficient Software Testing Technique Based on Hybrid Database Approach", International Journal of Advanced Computer Science and Applications. (IJACSA),(ISI), 2019

36   Mukkarum Hussain IftikharAhmed IlyasKhan Chu Anh My, MirzaMehmoodBaig, Stanislav S.Makhanov, "Simulation of liquid fuel combustion start-up dynamical behaviour" Case Studies in Thermal Engineering (Elsevier), I.F 4.1, 2021.

37   Muhammad Imran, Saman Hina, Mirza Mahmood Baig "Analysis of Learner's Sentiments to Evaluate Sustainability of Online Education System during COVID-19 Pandemic, Sustainability (JCR) I.F 3.889, Vol 14, 11 April, 2022.

38   Syed Tauqeer Ahmed Hashmi, Fahim Raees, Mirza Mahmood Baig, "Predicting Adoption of Solar Power System in Southern Region of Pakistan through Linear Regression Model", Journal of Xi'an Shiyou University, Natural Science Edition Vol 18 Issue 9 September 2022(132-143)

39   Humaira Faraz, Fahim Raees , Mirza Mahmood Baig, "Significance of Price Markets in Karachi and Cost Reduction Factor in Computing Price Index for Food Items", Journal of Xi'an Shiyou University, Natural Science Edition, vol. 18 issue 9, September 2022, (52-62).

40   Humaira Faraz, Fahim Raees , Mirza Mahmood Baig, "Capturing the role of rural consumers in sensitive price indicator through geometric consistency check on urban and rural market prices" Mehran University Research Journal of Engineering and Technology, October 2023, 42(4) 01-07.

41   Syed Tauqeer Ahmed Hashmi, Fahim Raees and Mirza Mahmood Baig, "A Study of Solar Power Usage in the Southern Region of Pakistan", Sustainability (JCR) I.F 3.9, Vol 15,2023 (1-17).

Honours and Activities

Certificate of award for research Paper titled, "Efficient Execution Plan for Hypothetical Database Testing" awarded by (**NEDAASC**) NED Alumni Association of Southern California USA

Certificate of award for research publication, awarded by (**NEDAASC**) NED Alumni Association of Southern California USA, 2017.

Training/ Lectures/Workshop/Seminar Attended:

- Workshop, "Writing Scientific Papers", University of Karachi in collaboration with University of Illinois, Chicago, USA.2005
- MATLAB, CCEE, NED University of Engineering & Technology, Karachi.
- Oracle 9i, CCEE, NED University of Engineering & Technology, Karachi. .
- Workshop, "Computational Methods in Mathematics" International, Organised by COMSTECH Islamabad, May 2012.
- 1st NED International Textile Conference, Research, Innovation &Advancement, organized by Textile Engg. Department NEDUET, 13th March 2014.
- Seminar on "Intellectual Property Protection", jointly organized by PASTIC & Faculty of Civil Engineering, NEDUET, May 28th 2014.
- Attended: HEC Indigenous on Campus Training Program "Good Governance" held on 25th August 2014 to 1st September 2014 at NEDUET Karachi.
- Attended Training: Tertiary Education Support Program Higher Education Commission, "Leadership & Change Management", held on 18th to 21st May 2015, at Centre for Executive Education Institute of Business Administration (IBA CEE), Karachi.
- Attended Training: Higher Education Commission Indigenous on campus training program, "Procurement Procedures", held on 31st May to 2nd June 2016, at Video conference hall, Civil Engineering department NEDUET.
- Attended seminar for the evaluation of PhD Student of Applied mathematics as an External Expert at Mehran University of Engg. & Technology, Jamshoro dated 18-06-2021.
- To visit Mehran University of Engineering & Technology, Jamshoro for the Evaluation of Initial **Seminar** of Ph.D Student of Applied Mathematics as an External Expert on 18-06-2021.
- Seminar on Best Practices in Quality Assurance in Higher Education organised by QEC NEDUET, 14th November 2022.
- Attended: Fifth NED International Textile Conference, organised by Department of Textile Engineering NEDUET, November 16-17, 2022
- To Conduct Workshop, "Effective Teaching Strategies" at Sir Syed University of Engineering Technology, Karachi on 22nd December 2022.

PhD Thesis Examined

- Syed Inayayullah, Some New Artificial-Free Pivotal Algorithms for Linear Programming, Department of Mathematics, University of Karachi, November 2012.
- Muhammad Imtiaz, Evaluation of Some New Variants of Simplex method, Department of Mathematics, university of Karachi, January 2014.
- Muhammad Umer Zeeshan, Weighted Majorization Theorem Via Taylor's Formula, Department of Mathematics, University of Karachi, 2017.
- Hina Zaheer, On the Solution of Linear programming problems with Bounded Restrictions, Department of Mathematics, University of Karachi, 2019.
- Asma Rani, Some New Algorithm on the Solution of General Linear Programming Problems, Department of Mathematics, University of Karachi, 2019.
- Zehra Akhter, Some Exact Solutions of Navier Stokes Equations, Department of Mathematics, University of Karachi, 2014.
- Ehtisham Karim, n-Exponential Convexity and n-Exponential Concavity for Majorization, Department of Mathematics, University of Karachi, 2016.
- Hira Khan, Estimation of Clear SKY Solar Radiation for Hyderabad, Department of Mathematics, University of Karachi, 2021.
- Ambreen Zehra, Analyzing the Role of Mathematics For Improving conceptual Business and Engineering Studies, Department of Mathematics, University of Karachi, 2022.
- Sara Mahesar, Modified Derivative Based Open and Semi Open Quadrature Rules, University of Sindh, 2023.
- Zulqarnain, The Development of a New Technique to Find Initial Basic Feasible Solution of Transportation Problems, University of Sindh 2022.
- Bhoj Raj, Fractional Treatment on the Heat Transfer of Gravity Driven Fluid Flow with Thermal Radiation, University of Sindh 2022
- Abdul Hameed, Linear Programming Model of Major Crops in Sindh Province, University of Sindh, 2022
- Visited University of Sindh, Jamshoro for PhD. Viva-Voce examination as an External Examiner on 28-04-2021.
- Visited University of Sindh, Jamshoro for PhD. Viva-Voce examination as an External Examiner on 08-02-2022.
- Visited University of Sindh, Jamshoro for M. Phil Viva-Voce examination as an External Examiner on 18-05-2022
- Visited University of Karachi for PhD. Viva-voce examination as an External Examiner on 23-12- 2022
- Visited University of Karachi for M.Phil. Viva-voce examination as an External Examiner on 23-12-2022

Acting Charges as Chairperson

- Humanities Department from 07-10-2014 to 07-11-2014
- Chemistry Department from 14-12-2018 to 04-08-2020
- Physics Department from 14-12-2018 to 04-08-2020
- CS&IT Department from 22-11-2021 to 24-01-2022
- Software Engineering Department from 22-11-2021 to 06-10-2022