

Address

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Programming

MATLAB, C/C++,
Python, R

OS Preference

GNU/Linux ★★★★★
Unix ★★★★★
MacOS ★★★★★
Windows ★★★★★

Personal Skills



Dr. Muhammad Sulaiman

Teaching/research Experience (11 Years)

- 02/2016 - Now **Assistant Professor of Mathematics** [Abdul Wali Khan University, Mardan, KPK, Pakistan](#)
Teaching and supervising undergraduate and postgraduate students, marking and feedback on exam papers and homework.
- 08/2009 - 02/2016 **Lecturer in Mathematics** [Abdul Wali Khan University, Mardan, KPK, Pakistan](#)
Teaching mathematics to undergraduate and postgraduate students, marking and feedback on exam papers and homework.
- 10/2011 - 04/2015 **Postgraduate Research Student** **DMS, University of Essex, UK**
Improvements and implementation of a Nature-inspired metaheuristic (The strawberry algorithm).
- 09/2012 - 04/2015 **Graduate Teaching Assistant (GTA)** **DMS, University of Essex, UK**
Teaching mathematics to undergraduate and postgraduate students.
Providing feedback/marketing of homework and exam papers.

Education

- 10/2011 - 04/2015 **Doctor of Philosophy in Mathematics** **DMS, University of Essex, UK**
Keywords: Optimization, Nature-inspired algorithms, heuristic/metaheuristic, The plant propagation algorithm (strawberry algorithm), Design engineering problems, constrained optimization problems, Neural Networks, Differential Equations, Soft Computing.
Title of the Thesis: A Nature-inspired Metaheuristic: The Plant Propagation Algorithm.
Supervisor: Prof. Abdel Salhi.
- 01/2007 - 02/2009 **Master of Philosophy in Mathematics (M.Phil)**
[Quaid-e-Azam University, Islamabad, Pakistan](#)
Keywords: Analytical mechanics, Analytical dynamics, constrained holonomic/non-holonomic dynamical systems.
Title of the Thesis: "Extention of Noether's Theorem to Constrained Non-Conservative Dynamical Systems in Lagrange Formalism".
Supervisor: Dr Qari Naseer Ahmed.
- 01/2005 - 01/2007 **Master of Science in Mathematics (M.Sc.)**
[Quaid-e-Azam University, Islamabad, Pakistan](#)
Main subject(s): Mathematics
- 09/2002 - 09/2004 **Bachelor of Science (B.Sc.)**
[University of Peshawar, KPK, Pakistan](#)
Main subject(s): Math A, Math B, Computer Science

Certifications

10/2012-03/2014 **A Certificate on the Achievement of the Status of Associate Fellow**

[The Higher Education Academy, United Kingdom](#)

Learning and Development

09/2012-10/2012 **Equality and Diversity Essentials Course**

[University of Essex, United Kingdom](#)

Learning and Development

09/2012-10/2012 **The University of Essex Induction Program for Graduate Teaching Assistants**

[University of Essex, United Kingdom](#)

Learning and Development

Conferences/workshops (National and International)

EGH2012, Essex-Greenwich-Hertfordshire Workshop on Applied and Numerical Mathematics (sponsored by the London Mathematical Society), June 7th – 8th 2012, University of Greenwich, Greenwich Campus, Park Row, Greenwich, **London**.

International Conference on Metaheuristics and Nature Inspired Computing, META'2014, October 27th – 31st 2014, Marrakech, **Morocco**.

Soft Computing and its Practical Applications, 25-26 Oct 2016, Kohat University of Science and Technology, Kohat.

Modelling Simulation and Optimization, 18-19 April 2017, KUST, Kohat

NUST Conference on Recent Trends in Mathematical Sciences, 7-8 Nov 2017, National University of Science and Technology (NUST), School of Natural Sciences (SNS), Islamabad, Pakistan.

The Role of Mathematics in Solving Real World Problems, 29-30 Nov 2017, KUST

International Conference on Emerging Technologies (ICET), 27-28 DEC 2017, Capital University of Science and Technology, Islamabad.

The first international Metaheuristics Summer School – MESS 2018, 21-25 July 2018, Acireale, **Italy**.

1st International Conference on Mathematics, 30 Nov-2 Dec 2019, The University of Lahore.

The NUST Conference on Recent Trends in Mathematical Sciences-II, December 3 and 4, 2019, NUST, Islamabad.

The first Malakand-Japan Conference on Mathematics and its Application, March 3-5, 2020 at University of Malakand, Pakistan.

MPhil/BS External Examiner

- (1) University of Malakand
- (2) HITEC University Taxila
- (3) Kohat University of Science and Technology

Information regarding research grants completed so far:

Sr. #	Title of Project	Initiation date	Completion date	Amount(s) awarded	Funding source(s)
1	Solution of multi-objective engineering optimization problems by the multi-objective plant propagation algorithm	28 July 2016	27 April 2017	0.2 million	HEC SRGP (PI)
2	A general infeasibility certificate for non-linear optimization problems	12 April 2017	10 January 2018	0.182 million	HEC SRGP (CO-PI)

Honor(s)

Awarded faculty development scholarship for PhD study in UK under the Human Resource Development (HRD) scheme of Abdul Wali Khan University Mardan, KPK, Pakistan.

HEC approved supervisor.

SUBJECTS TAUGHT:

- 1) **Optimization Methods (MSc and BS Maths)**
- 2) **Optimization Techniques-I (MPhil-First semester)**
- 3) **Optimization Techniques-II (MPhil-Second Semester)**
- 4) **Ordinary Differential Equations (MSc and BS Maths)**
- 5) **Partial Differential Equations (MSc and BS Maths)**
- 6) **Operations Research (MPhil-First semester)**
- 7) **Nature-Inspired Algorithms (MPhil-second semester)**
- 8) **Real Analysis (MSc and BS Maths students)**
- 9) **Linear Algebra (BS Maths)**
- 10) **Numerical Analysis (BS Maths)**
- 11) **Analytical Mechanics (MPhil-first semester)**
- 12) **Mathematical Techniques (BS Maths)**
- 13) **Calculus I and II (BS Maths)**

Supervision

MSc Math Project Students

- 1) Muhammad Imran (2009-2011) completed
- 2) Rahat Ullah (2009-2011) completed
- 3) Aisha (2009-2011) completed

BS Math Project Students

- 1) Nasir Ali (2014-2017) Completed
- 2) Maqsood Ali (2014-2017) Completed
- 3) Haris Khan (2014-2017) Completed
- 4) Mujahid Khan (2014-2017) Completed
- 5) Sahar (2015-2018) Completed
- 6) Nagina (2015-2018) Completed
- 7) Anila (2015-2018) Completed
- 8) Faiza (2015-2018) Completed
- 9) Muhammad Adil (2015-2018) Completed
- 10) M Nouman Khan (2015-2018) In Progress
- 11) Ali Usman (2015-2018) Completed
- 12) Atta Ur Rahman (2015-2018) Completed

MPhil Students

- 1) Ashfaq Ahmad (2016-2017) (Completed)
- 2) Waseem (2016-2017) (Completed)
- 3) M. Sulaman (2016-2017) (Completed)
- 4) Naveed Ullah (2016-2017) (Completed)
- 5) Ismat Samiullah (2016-2017) (Completed)
- 6) Zubair Hussain (2017-2018) (Completed)
- 7) Masih Ullah (2017-2018) (Completed)
- 8) Saif Uddin (2017-2018) (Completed)
- 9) Muhammad Islam (2017-2018) (Completed)
- 10) Ihsan Ullah (2017-2018) (Completed)
- 11) Hanif (----- S 2019) (Completed)
- 12) Hamad (----- S 2019) (Completed)
- 13) Sartaj (----- S 2019) (Completed)
- 14) Ayaz (----- S 2019) (Completed)
- 15) Fawad (----- S 2019) (Completed)
- 16) Adnan (In Progress) (----- S 2020)
- 17) Umar Hussain (In Progress) (----- S 2020)
- 18) Maqsood Ali (In Progress) (----- S 2020)
- 19) Irfan-Ur-Rahman (In Progress) (----- S 2020)
- 20) Bushra (Co-supervised with Dr Syed M Ghufuran) (In Progress) (----- S 2020)
- 21) Muhammad Jawad (Co-supervised with Dr Syed M Ghufuran) (In Progress) (-- S 2020)

PhD Student(s)

- 1) Ayaz Bukhari (2016-2019) Submitted
- 2) Sohail Ahmad (2017-2020) In Progress
- 3) Waseem In Progress
- 4) Ashfaq Ahmad In Progress

Committee member/ Reviewer (for national and international journals/ conferences)

- 1) Journal of the Operational Research Society
- 2) International Journal of Computing Science and Mathematics
- 3) Member of Scientific Committee: RECENT ADVANCES IN PURE AND APPLIED MATHEMATICS 20-22 January 2016
- 4) TPC Member for "2016 12th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD 2016)"
- 5) TPC Member for "The 2017, 2018- 13th and 14th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD 2017-2018)"
- 6) The journal OPSEARCH
- 7) Neural Computing and Applications
- 8) RAIRO - Operations Research
- 9) The Nucleus, PINSTECH, Nilore, 45650, Islamabad, Pakistan
- 10) International Journal of Metaheuristics
- 11) Independent Journal of Management and Production
- 12) Sindh University Research Journal (SURJ)
- 13) IEEE ACCESS
- 14) International Journal of Bio-Inspired Computation (IJBIC)
- 15) Member of Scientific Committee: 3rd International Conference on Advanced Engineering Technologies (ICADET), Bayburt University Turkey, on 19-21 September 2019.
- 16) International Journal of Swarm Intelligence Research (IJSIR)
- 17) Journal of Intelligent and Fuzzy Systems
- 18) Journal of Computational Design and Engineering
- 19) IEEE Transactions on Systems, Man and Cybernetics: Systems

Editorial/ Associate Editorial Board Membership

- 1) COJ Reviews and Research
- 2) SCIREA Journal of Mathematics

PUBLICATIONS LIST

Cumulative Impact Factor: 57.41

Sr. No	1 st Author	Co-author	Title	Year of Publication	Journal	Category
1	Muhammad Sulaiman*	Abdellah Salhi, Birsen Irem Selamoglu, and Omar Bahaaldin Kirikchi	A Plant Propagation Algorithm for Constrained Engineering Optimisation Problems	May 2014	Mathematical Problems in Engineering	IF 1.383 2012
2	Muhammad Sulaiman*	Abdellah Salhi	A Seed-Based Plant Propagation Algorithm: The Feeding Station Model	February 2015	The Scientific World Journal	IF 1.219 2013
3	W.K. Mashwani	A. Salhi, M.A. Jan, R.A. Khanum and M. Sulaiman	Impact Analysis of Crossovers in Multiobjective Evolutionary Algorithm	Nov-Dec 2015	Science International (Lahore)	ISI-Indexed
4	W.K. Mashwani	A. Salhi, M.A. Jan, R.A. Khanum and M. Sulaiman	Enhanced Version of Multi-algorithm Genetically Adaptive for Multiobjective Optimization	2015	International Journal of Advanced Computer Science and Applications	ISI Indexed
5	M. Sulaiman*	A. Salhi, E.S. Fraga, W.K. Mashwani and M.M. Rashidi	A Novel Plant Propagation Algorithm: Modifications and Implementations	2015	Science International (Lahore)	ISI-Indexed
6	Wali Khan Mashwani	Abdellah Salhi, Muhammad Asif jan, Muhammad Sulaiman , Rashida Adeb Khanum and Abdul mohsen Algarni	Evolutionary Algorithms Based on Decomposition and Indicator Functions: State-of-the-art Survey	2016	International Journal of Advanced Computer Science and Applications	ISI Indexed

7	Asfandiyar Khan	M. Arif, M. Shah, M. Sulaiman and W.K. Mashwani	On Distributive AG-groupoids	Mar 2016	Science International (Lahore)	ISI-Indexed
8	M. Sulaiman*	A. Salhi	A Hybridisation of Runner-based and Seed-based Plant Propagation Algorithms	2016	Springer International Publishing Switzerland, X.-S. Yang (ed.), Nature-Inspired Computation in Engineering, Studies in Computational Intelligence	Book Chapter in Springer
9	Selamoğlu B.İ.	Salhi A., Sulaiman M.	Strip Algorithms as an Efficient Way to Initialise Population-Based Metaheuristics.	2018	In: Amodeo L., Talbi EG., Yalaoui F. (eds) Recent Developments in Metaheuristics. Operations Research/Computer Science Interfaces Series, Springer, Cham	Book Chapter in Springer
10	Muhammad Sulaiman*	Ashfaq Ahmad, Asfandiyar Khan and Shakoor Muhammad	Hybridized Symbiotic Organism Search algorithm for the optimal operation of Directional Over-Current Relays	2018	Complexity	IF 4.621 2016
11	Muhammad Sulaiman*	Waseem, Shakoor Muhammad and Asfandiyar Khan	Improved solutions for the optimal coordination of DOCRs using firefly algorithm	2018	Complexity	IF 4.621 2016
12	M. Sulaiman*	A. Salhi, Asfandiyar Khan, Shakoor Muhammad, and Wali Khan,	On the Theoretical Analysis of the Plant Propagation Algorithms	2018	Mathematical Problems in Engineering	IF 0.802 2016

13	W.K.Mashwani	Alam zaib, Ozgur Yeniay, H.Shah, N.M.Tairan and M. Sulaiman	Constrained Optimization with Hybrid Evolutionary Algorithms	2018	Hacettepe Journal of Mathematics and Statistics	IF 0.558 2017
14	Muhammad Sulaiman*	Sohail Ahmad, Javed Iqbal, Asfandyar Khan, and Rahim Khan	Optimal operation of the hybrid electricity generation system using multi-verse optimization algorithm	2019	Computational Intelligence and Neuroscience	IF 1.64 2017
15	Muhammad Sulaiman*	Masihullah, Zubair Hussain, Sohail Ahmad, Wali Khan Mashwani, Muhammad Asif Jan, Rashida Adeeb Khanum	Implementation of Improved Grasshopper Optimization Algorithm to Solve Economic Load Dispatch Problems	2019	Hacettepe Journal of Mathematics and Statistics	IF 0.605 2018
16	R.A. Khanum	M.A. Jan, N.M. Tairan, W.K. Mashwani, M. Sulaiman , H.U. Khan, H. Shah,	Global Evolution Commended by Localized Search for Unconstrained Single Objective Optimization	2019	Processes	IF 1.27 2017
17	Hassan Javed	Muhammad Asif Jan, Nasser Tairan, Wali Khan Mashwani, Rashida Adeeb Khanum, Muhammad Sulaiman , Hidayat Ullah Khan	On the Efficacy of Ensemble of Constraint Handling Techniques in Self-adaptive Differential Evolution	2019	Mathematics	IF 1.10 2018

18	Muhammad Sulaiman*	Samiullah Ismat, Hamdi, A., Hussain Zubaira.	An Improved Whale Optimization Algorithm for Solving Multi-objective Design Optimization Problems of PFHE	2019	Journal of Intelligent & Fuzzy Systems	IF 1.63 2018
19	Waseem Waseem	Muhammad Sulaiman* , Saeed Islam, Poom Kumam, Rashid Nawaz, Muhammad Asif Zahoor Raja, Muhammad Farooq, Muhammad Shoaib	A study of changes in temperature profile of porous fin model using cuckoo search algorithm	2020	Alexandria Engineering Journal	IF 3.69 2018
20	Ayaz Hussain Bukhari	Muhammad Sulaiman* , Saeed Islam, Muhammad Shoaib, Poom Kumam, Muhammad Asif Zahoor Raja	Neuro-fuzzy modeling and prediction of summer precipitation with application to different meteorological stations	2020	Alexandria Engineering Journal	IF 3.69 2018
21	Ayaz Hussain Bukhari	Muhammad Sulaiman* , Saeed Islam, Muhammad Shoaib, Poom Kumam, Muhammad Asif Zahoor Raja	Fractional Neuro-Sequential ARFIMA-LSTM for Financial Market Forecasting	2020	IEEE Access	IF 4.09 2018

22	W. Waseem	Muhammad Sulaiman* , Ahmad Alhindi, Hosam Alhakami	A Soft Computing Approach Based on Fractional Order DPSO Algorithm Designed to Solve the Corneal Model for Eye Surgery	2020	IEEE Access	IF 4.09 2018
23	Sohail Ahmad,	Muhammad Sulaiman* , Poom Kumam, Zubair Hussain, Muhammad Asif Jan, Wali Khan Mashwani, Masih Ullah	A novel population initialization strategy for accelerating Levy flights based multi-verse optimizer	2020	Journal of Intelligent & Fuzzy Systems	IF 1.63 2018
24	Aqib Ali	Salman Qadri; Wali Khan Mashwani; Wiyada Kumam; Poom Kumam; Atila Goktas; Samreen Naeem; Farrukh Jamal; Christophe Chesneau; Sania Anam; Muhammad Sulaiman	Machine Learning Based Automated Segmentation & Hybrid Feature Analysis for Diabetic Retinopathy Classification using Fundus Images	2020	Entropy	IF 2.41 2018

25	Ayaz Hussain Bukhari	Muhammad Sulaiman* , Muhammad Asif Zahoor Raja, Saeed Islam, Muhammad Shoaib, Poom Kumam	Design of a hybrid NAR-RBFs neural network for nonlinear dusty plasma system	2020	Alexandria Engineering Journal	IF 3.69 2018
26	Adnan Khan	Muhammad Sulaiman* , Hosam Alhakami, Ahmad Alhindi	Analysis of Oscillatory Behavior of Heart by Using a Novel Neuroevolutionary Approach	2020	IEEE Access	IF 4.09 2018
27	Muhammad Sulaiman*	Muhammad Sulaman, Abdelwahed Hamdi, Zubair Hussain	The Plant Propagation Algorithm for the Optimal Operation of Directional Over-Current Relays in Electrical Engineering	2020	Mehran University Research Journal of Engineering and Technology	ISI-Indexed
28	Ashfaq Ahmad	Muhammad Sulaman* , Ahmad Alhindi, Abdulah Jeza Aljohani	Analysis of temperature profiles in longitudinal fin designs by a novel neuroevolutionary approach	2020	IEEE Access	IF 4.09 2018
29	Waseem	Muhammad Sulaiman* , Poom Kumam , Muhammad Shoaib, Muhammad Asif Zahoor Raja, Saeed Islam,	Investigation of singular ordinary differential equations by a neuroevolutionary approach	2020	Plos One	IF 2.7 2018

30	Amjad Ali	M. Hamraz, Poom Kumam, Dost M Khan, Umair Khalil, Muhammad Sulaiman, Zardad Khan	A k-Nearest Neighbors Based Ensemble via Optimal Model Selection for Regression	2020	IEEE Access	IF 3.74 2019
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***Corresponding author**

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