



PROF. DR. MUHAMMAD UMER SALEEM

January 22, 1984.

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Lahore, Pakistan. *Email(Off):* dsa@ue.edu.pk

Citizenship Pakistani

Research Interests Mathematical Modelling, Control Theory, Optimization, Numerical Analysis, Mathematical Physics, Methods of Teaching Mathematics, Number Theory, Differential Equations, Graph Theory.

Education **Karl-Franzens University (University of Graz), Austria.**

Post Doc (Ernst Mach Grant)

Mathematics (2019-2020)

- Thesis Topic: An Approach for Fully Automatic Artificial Pancreas.
- Advisor: Ao. Univ. Prof. Dr. Franz Kappel
- Specialization: Modeling and Control in Physiological Systems.

Ph.D.

Mathematics (2008-2011)

- Thesis Topic: Controllability and Observability in Glucose Insulin Systems for Human.
- Advisor: Ao. Univ. Prof. Dr. Franz Kappel
- Specialization: Optimization and Control in Physiological Systems.

Government College University, Lahore, Pakistan.

M.Phil.

Mathematics (2006-2008)

- Thesis Topic: The Products of Graphs and Their Characterizations.
- Advisor: Prof. Dr. Karamat Hussain Dar
- Specialization: Applied Mathematics.

M.Sc.

Mathematics (2003-2005)

- Thesis Topic: A Study of Cryptography.
- Advisor: Dr. Shahadat Ali Taj
- Specialization: Applied Mathematics.

University of the Punjab, Lahore, Pakistan.

B.Sc.

Mathematics and Physics (2001-2003)

- Specialization: Applied Mathematics, Pure Mathematics and Physics.

BISE, Lahore, Pakistan.

F.Sc.

Pre-Engineering (1999-2001)

- Specialization: Mathematics, Physics and Chemistry.

Matriculation.

Science (1997-1999)

- Specialization: Mathematics, Physics, Chemistry and Biology.

Achievements Heidelberg Laureate Forum, Germany

Heidelberg Laureate Forum (HLF) (2020 & 2021)

- Only Pakistan to attend 7th and 8th HLF for two consecutive years being the Young Researchers of Mathematics.

Higher Education Commission, Pakistan.

Ph.D. Approved Supervisor (2022-2025)

- HEC PhD Approved Supervisor in the discipline of Physical Sciences, for a period of three (03) years.

Higher Education Commission, Pakistan.

Ph.D. Scholarship (2008-2011)

- Ph.D. scholarship awarded by Higher Education Commission of Pakistan in cooperation with the Centre for International Cooperation and Mobility-OeAD, Austria.

Karl-Franzens University (University of Graz), Austria.

Redner des Jahres (Speaker of the Year). (2010)

- Annual award given by the doctoral school of Institute of mathematics and scientific computing to doctoral student who demonstrate excellence in presenting his Ph.D research work.

Government College University, Lahore, Pakistan.

First Position in department. (2008)

- Got first position in M. Phil mathematics session 2006-2008 in theory as well as whole degree in department of Mathematics GCU, Lahore.

Quaid-e-Azam College of Commerce, Lahore, Pakistan.

Best Teacher. (2006) & (2007)

- Got best teacher twice from Quaid-e-Azam College of Commerce for teaching business mathematics and statistics and calculus to MBA, M.Com and B.Com in students choice award.

Academic Experience

Inst. of Mathematics & Scientific Computing, KFU, Graz.

Post Doc Fellowship Summer 2019

- Got Ernst Mach Grant to participate in the research project " *Mathematics and Medical Physiology Modeling Group*" with Prof. F. Kappel and Prof. Jerry Batzel.

Research Assistant Summer 2008 to Summer 2011

- Participated in the research project " *Mathematics and Medical Physiology Modeling Group*" with Prof. F. Kappel and Prof. Jerry Batzel.

Teaching Assistant Summer 2008 to Summer 2011

- Organize discussion/problem/review session once a week that augmented the optimization and control in physiological systems, mathematical modeling and exercises of Matlab programming in modeling.

Employment

University of Education, Lahore.

University of Education, DS&T, Township, Lahore.

Professor **December 2022 to Date**

Associate Professor **January 2020 to December 2022**

Assistant Professor **October 2011 to January 2020**

- Supervising PhD/MS/BS Theses. Teaching PhD, MS, M.Sc and B.Sc Mathematics classes. Administrative duties by competent authorities

Director Sports **January 2017 to date**

- Managing the affairs of the Directorate of Sports.

Director Student Affairs **November 2015 to date**

- Dealing with administrative and management affairs of the Directorate of Student Affairs

Inst. of Mathematics & Scientific Computing, KFU, Graz.

Research Fellow **Summer 2008 to Summer 2011**

- To find control of GI systems to construct a fully automatic artificial pancreas. Conducting research on controllability and observability in the glucose insulin systems for human. Presenting the latest results and discussions on the artificial pancreas.

Lahore University of Management Sciences, Lahore, Pakistan.

Research Assistant **March 2008 to June 2008**

- Worked as a research assistant to prepare lectures notes and grading papers of mathematics. Also research work on Graph products.

Allama Iqbal Open University, Lahore, Pakistan.

Tutor **June 2006 to June 2008**

- Teaching Business Mathematics and Statistics and Calculus to MBA and M.Com classes in evening sessions.

Quaid-e-Azam College of Commerce, Lahore, Pakistan.

Instructor of Mathematics **June 2005 to May 2008**

- Teaching MBA, M.Com, B.Com and B.Sc classes. Preparation and presentation of lectures, supervision of group work, writing and grading tests and quizzes, grading projects and papers.

**Other
Employment**

Mansoor Academy, Lahore, Pakistan.

Mathematics Instructor **2003 to 2008**

- Teaching mathematics and Physics to undergraduate and graduate classes.

Private Colleges and Institutions, Lahore, Pakistan.

Private Instructor of Mathematics **2003 to 2008**

- Private mathematics tutor for various high school, undergraduate, and graduate math courses specially Calculus, Calculus with Analytical Geometry, Mechanics, Numerical Analysis, Mathematical Physics and Discrete Mathematics.

GRE Instructor **2005 to 2008**

- Taught four times every session a three-week short course in GRE preparation to a diverse population of students in different private institutions.

**Work
Experience**

University of Education, DS&T, Township, Lahore.

Member Board of Faculty: DS&T. **2020-date**

Member Board of Studies: Mathematics. **2020-date**

Member Editorial Board "The Amozish". **2015-date**

Co-opted Member Board of Studies. **2012-2020**

Spokesperson Mathematics Department. **2012-2016**

Incharge Students Council Center **2014-2016**

Incharge Sports **2012-2016**

Incharge Time Table **2012-2016**

- Administrative duties by competent authorities (Incharge Students Council Center, Incharge Sports, Incharge Time Table, Member Committee Hiring Visiting faculty, etc.) and also looking up the internal affairs of Mathematics department on behalf of Director DS&T.

Inst. of Mathematics & Scientific Computing, KFU, Graz.

Member SIAM Chapter Graz **2009-date**

- Presented recent advances in research topic at meetings held by Siam Chapter Graz, Karl-Franzens University, Graz, Austria.

Government College University, Lahore, Pakistan.

Class Representative M.Phil **2007-2008**

President **2004-2005**

General Secretary **2003-2004**

- Chawla Mathematical Society, Government College University, Lahore, Pakistan.

Organizer **2003-2008**

- Organize all the events for **National Centre for Mathematics**, Government College University, Lahore, Pakistan.

Technical Skills

Matlab Experience: Linear Algebra, Optimization, Nonlinear Numerical Methods, Statistics, PDE's.

Applications: T_EX, L^AT_EX, B_IB_TE_X, Microsoft Office, and other common productivity packages for Windows, OS X and MATHEMATICA.

Operating Systems: Microsoft Windows XP, Vista, 7, 10, Apple OS X and Linux.

Problem Solving: Excellent analytical and logical reasoning skills. Hard working and group friendly are my strongest virtues. Can do multi-tasking. Can learn new skills quickly. Able to lead or work within a group environment.

Other Skills

Languages

- **English:** Test of English as a Foreign Language, Internet-based test, TOEFL(iBT) - passed with 91 points (*2008*).
- **German:** Deutsch für Anfänger (A1), intensive course from ISOP Graz, Austria - passed with grade Sehr Gut (*2010*).

- **Urdu:** National Language.
- **Punjabi:** Mother Language.

Sports

- Cricket Coach (International Cricket Council and Austrian Cricket Association certified LEVEL-I Coach)
- Cricket (Played Austrian Open League 2008-2011 and Summer 2019), Football, Badminton, Body Building and Cycling.

Hobbies

- Books Reading
- Net Surfing
- Welfare Work

Mathematical Expertises

Mathematical Modelling, Modelling in Life Sciences, Control Theory, Optimization, Optimization and control in physiological systems, Modelling and Simulation, Numerical Analysis, Mathematical Physics, Classical and Generalized Sensitivity Analysis, Delay Differential Equations, Partial Differential Equations, Analytical and Numerical solution of PDEs, Graph Theory, Foundation of Mathematics, Business Mathematics, Calculus.

Training / Workshops

Resource Person for Training on

- Career Counseling (PHEC)
- Microsoft Certified Trainers (MCTs)
- Intellectual Property Rights (HEC)
- Methods of Teaching Mathematics (UE)
- General Aptitude Tests (UE)
- Professional Writing Softwares (UE)
- Professional Trainer Cricket and Bodybuilding (UE)
- Countering Violence and Extremism (CVE)

Career Counseling

(January 9-10, 2018)

- Training on **Arranging Various Activities Required at Career Counseling Centers** for the Career Counselors of Govt. Colleges of the Punjab at PHEC Staff Development Academy.

Intellectual Property Rights

(June 1-4, 2015)

- Training on **Introducing the Concept of Intellectual Property and IP Road Show** for the Staff of Universities at IBA, Karachi by HEC.

Peace Conference (VCs and DSAs) (April 19-20, 2017)

- Convener of the Organizing Committee for **Two Days Conference of Vice Chancellors and Director Student Affairs** of Public Sector Universities of the Punjab at Avari Hotel, Lahore. The purpose of the Conference was to deliberate and devise a strategy for promoting peace and harmony among the University committees consisting of students, staff and faculty.

DSA's Workshop (November 29-30, 2017)

- Convener of the Organizing Committee for **Two Days Workshop for Director Student Affairs at Public Sector Universities of the Punjab for Peaceful and Tolerant University Campuses** at University of Education, College Road, Township, Lahore as a follow up of the **Peace Conference**.

Peace Seminars (December 17, 2016 and December 15, 2017)

- Convener of the Organizing Committee for **Peace Seminars to commemorate the Martyrs of Army Public School, Peshawar, Pakistan**.

Equipment Distribution Ceremony (April 24, 2018)

- Convener of the Organizing Committee for **Equipment Distribution Ceremony** as an implementation on One of the recommendations to engage students by various student societies such as Music, Declamation and Dramatic in different activities to promote peace and tolerance in campuses at University of Education, Bank Road Campus, Lahore as a follow up of the **Peace Conference**.

Securing The Future (ISC&E 2018) (December 10-13,2018)

- Convener Punjab and Sindh to provide support of **2 Days Residential International Students Convention 2018** by engaging 78 students, 26 Faculty members including Vice Chancellors and PHEC officials from 10 CRA targeted universities of Punjab and Sindh at Islamabad.

Engaging Youth Towards Peace (January-June 2019)

- Convener of the Project **Engaging Youth Towards Peace of Drug Free Foundation of Pakistan** which will train Music and Dramatic Societies of the University of Education, Lahore for the promotion of Peace and Tolerance in University.

Promotion of Tolerance Culture (March-July 2019)

- Convener of the Project **Promotion of Tolerance Culture in UoE Multan of Center for Policing and Security** which will train Sports, Music and Dramatic Societies of the University of Education, Lahore Multan Campus for the promotion of Peace and Tolerance in University.

Fostering Peace and Resilience by Strengthening Students Media Society (March-June 2019)

- Convener of the Project **Fostering Peace and Resilience by Strengthening Students Media Society of Interactive Resource Centre** which will train Media Society of the University of Education, Lahore for the promotion of Peace and Tolerance in University.

Building your Future Career: Europass, Euraxess and grants.at, OeAD (November 04, 2019)

- OeAD Training at TU Graz, Austria.

Project Management for Researchers (September 15, 2021)

- Training by **MCI — The Entrepreneurial School** for the Selected Young Researchers of 8th HLF, 2021.

Intercultural Science Art Project (September 27, 2021)

- Kick Off Meeting by **Demian Goos, National University of Rosario, Argentina** for the Selected Young Researchers of 8th HLF, 2021.

- Publications** Saleem, Muhammad Umer., **Prime factorizations for bipartite graphs**, studienarbeit, (*November 2008*). Montan University Leoben, Austria.
- Nizami, AR., Munir, Mubeen., Saleem, Muhammad Umer., Ramzan, Ansa., **A Recursive Approach to the Kauffman Bracket**, *Applied Mathematics*, 2014, 5, 2746-2755.
- Farman, M., Saleem, Muhammad Umer., Meraj, M A., **Control of GI Regulatory System for T1DM**, *Science International*, 2016, 28(1), 27-29.
- Saleem, Muhammad Umer., Farman, M., Meraj, M A., **A Linear Control of Hovarka Model**, *Science International*, 2016, 28(1), 15-18.
- Farman, M., Saleem, Muhammad Umer., M O., Ahmad, Tabassum MF., Meraj, M A., **Exploring Mathematical Models for the Treatment of T1DM**, *Science International*, 2016, 28(2), 795-798.
- Saleem, Muhammad Umer., Farman, M., Meraj, M A., **Stability Analysis of Sorensen's Model for Controllability and Observability**, *B. Life and Environment Sciences*, 2017, 54(2), 133-145.
- Saleem, Muhammad Umer., Farman, M., M O., Ahmad, Rizwan, M., **Control of an Artificial Human Pancreas**, *Chinese Journal of Physics*, 2017, 55(6), 2273-2282.
- Farman, M., Saleem, Muhammad Umer., M O., Ahmad, **An Approach for Artificial Pancreas to Control the Type-1 Diabetes Mellitus**, *Journal of Applied Environmental and Biological Sciences*, 2017, 7(11), 93-102.
- Farman, M., Saleem, Muhammad Umer., Ahmad, Aqeel., M O., Ahmad, **Analysis and Numerical Solution of SEIR Epidemic Model of Measles with Non-Integer Time fractional Derivatives by Using Laplace Adomian Decomposition Method**, *Ain Shams Engineering Journal*, 2018, 9(4), 3391-3397.
- Ashraf, Farah., Ahmad, Aqeel., Saleem, Muhammad Umer., Farman, M., M O., Ahmad, **Dynamical Behaviour of HIV Immunology Model with Non-Integer Time Fractional Derivatives**, *International Journal of Advance and Applied Sciences*, 2018, 5(3), 39-45.
- Farman, M., Saleem, Muhammad Umer., M O, Ahmad, Ahmad, Aqeel., **Stability Analysis and Control of Glucose Insulin Glucagon System in Human**, *Chinese Journal of Physics*, 2018, 56(4), 1362-1369.

Saleem, Muhammad Umer., Farman, M., Ahmad, Aqeel., Meraj, M A., **Mathematical Model Based Assessment of The Cancer Control by Chemo-Immunotherapy**, Pure and Applied Biology, 2018, 7(2), 678-683.

Farman, M., Saleem, Muhammad Umer., **Control of Augmented Minimal Model for Glucose Insulin Pump**, Current Research in Diabetes & Obesity Journal, 2018, 8(4), 1-4.

Saleem, Muhammad Umer., Farman, M., Rizwan, M., M O., Ahmad, Ahmad, Aqeel., **Controllability and Observability of Glucose Insulin Glucagon systems in Humans**, Chinese Journal of Physics, 2018, 56(5), 1909-1916.

Jbara, Ahmed S., Saeed, M.A., Saleem, Muhammad Umer., **Theoretical Investigation of Structural and Electronic Properties of BeS_{1-x}Sex Alloys for Optoelectronic Applications**, Optik - International Journal for Light and Electron Optics, 2018, 1118-1122.

Zahid, A., Saleem, Muhammad Umer., Kashif, A., Meraj, M A., Irfan, R., **Spanning Simplicial Complex of Wheel Graph W_n** , Algebra Colloquium, 26(2) (2019) 309–320.

Saleem, Muhammad Umer., Farman, M., Ahmad, Aqeel., Naeem, M., M O., Ahmad, **Fractional Order Derivative Glucose Insulin Model to Control the Type 1 Diabetes Mellitus**, Punjab University Journal of Mathematics, 2019, 51(4), 97-113.

Farman, M., Saleem, Muhammad Umer., Tabassum, M F., Ahmad, Aqeel, M O., Ahmad, **A Linear Control of Composite Model for Glucose Insulin Glucagon Pump**, Ain Shams Engineering Journal, 2019, 10(4), 867-872.

Farman, M., Ahmad, Aqeel., Saleem, Muhammad Umer., Hafeez, Amina., **A Mathematical Analysis and Modelling of Hepatitis B Model with Non-Integer Time Fractional Derivative**, Communications in Mathematics and Applications, 2019, 10(3), 571–584.

Farman, M., Ahmad, Aqeel., Saleem, Muhammad Umer., M O., Ahmad, **Analysis and Numerical Solution of Epidemic Models by using Nonstandard Finite Difference Scheme**, Pure and Applied Biology, 2019, 9(1), 674-682.

Farman, M., [Saleem, Muhammad Umer.](#), Akgul., Ali, Ahmad, Aqeel., Bukhari, Nabila., Ahmad, Ijaz., **A control and Analysis of Bacillus Calmette Guerin (BCG) Immunotherapy for Bladder Cancer**, *INTERCIENCIA*, 2020, 45(3), 310-331.

[Saleem, Muhammad Umer.](#), Farman, M., Meraj, M. A., Tabassum, M. F., **Comparison of Glucose Insulin Model for Artificial Pancreas**, *Proceedings of the Pakistan Academy of Sciences: Pakistan Academy of Sciences A. Physical and Computational Sciences*, 2019, 56(4), 43-54.

Tabassum, M. F., Khan, Shahzaman., Farman, M., [Saleem, Muhammad Umer.](#), Ahmad, Aqsa Shamim., Ahmad, Aqeel., Hassan, Sadia Mahmood ul., **Glucose Insulin Algorithm for Artificial Pancreas to Control the Type 1 Diabetes Mellitus**, *INFORMATICA*, 2020, 31(4), 101-115.

[Saleem, Muhammad Umer.](#), Farman, M., Ahmad, Aqeel., Ul Haque, Ehsan., M O., Ahmad., **A Caputo Fabrizio Fractional Order Model for Control of Glucose in Insulin Therapies for Diabetes**, *Ain Shams Engineering Journal*, 2020, 11(4), 1309-1316..

Farman, M., [Saleem, Muhammad Umer.](#), Ahmad, Aqeel., Imtiaz, Sumaiyah., Tabassum, M. F., Akram, Sana., M O., Ahmad, **A Control of Glucose Level in Insulin Therapies for the Development of Artificial Pancreas by Atangana Baleanu Derivative**, *Alexandria Engineering Journal*, 2020,59(4), 2639-2648. .

[Saleem, Muhammad Umer.](#), Farman, M., Akgul, Ali., Ahmad, Aqeel., **Modeling and Analysis of HIV/AIDS Epidemic Model with Vertical Transmission**, *INFORMATICA*, 2020, .

Farman, M., [Saleem, Muhammad Umer.](#), Ahmad, Aqeel., Naeem, M., **Control and Simulation of Fractional Chaotic Financial Model with Minimum Interest Rate Impact**, *Ain Shams Engineering Journal*, 2020, .

Farman, M., Akgul, Ali., Ahmad, Aqeel., [Saleem, Muhammad Umer.](#), Rizwan, Muhammad., M O., Ahmad, **A Mathematical Analysis and Simulation for Zika Virus Model with Time Fractional Derivative**, *Mathematical Methods in the Applied Sciences*, 2020, 1-12, Special Edition.

Farman, M., Rasheed, Qasim Bin., [Saleem, Muhammad Umer.](#), Ahmad, Aqeel., Naeem, M., M O., Ahmad, **Modelling and Analysis of the Fractional Order Ebola Virus Model with Caputo Fabrizio Derivative**, *Punjab University Journal of Mathematics*, 2020, 52(10), 25-45.

Farooq, M., Mohsin, M., Naeem, M., Farman, M., Akgul, Ali., [Saleem, Muhammad Umer.](#), **Discretization of the Method of Generating an Expanded Family of Distributions Based Upon Truncated Distributions**, Thermal Science: International Science Journal, 2020, 25(SI 1), S19-S30.

Farman, M., [Saleem, Muhammad Umer.](#), Ahmad, Aqeel., **Dynamical Behavior of Fractional Order Finance System with Price Index Exponent**, Pramana Journal of Physics, 2020, 94:164, 1-10.

Ahmad, Aqeel., Farman, M., Naik, Pervaiz Ahmad., Zafar, Nayab., Akgul, Ali., [Saleem, Muhammad Umer.](#), **Modeling and Numerical Investigation of Fractional-order Bovine Babesiosis Disease**, Numerical Methods for Partial Differential Equations, 2021,37, 1946-1964.

Farman, M., Ahmad, Aqeel., Akgul, Ali., [Saleem, Muhammad Umer.](#), Naeem, M., Baleanu, Dumitru. **Epidemiological Analysis of the Coronavirus Disease Outbreak with Random Effects**, CMC-Computers, Materials & Continua, 2020, , 67(3), 3215-3227.

Farman, M., Ahmad, Aqeel., Akgul, Ali., [Saleem, Muhammad Umer.](#), Naeem, M., **Stability and Control of the Complex Chaotic Financial System with Fractional Derivative**, Mathematics in Engineering, Science and Aerospace, 2020, 11(4), 765-776.

Farman, M., Akgul, Ali., Ahmad, Aqeel., Baleanu, Dumitru., [Saleem, Muhammad Umer.](#), **Dynamical Transmission of Coronavirus Model with Analysis and Simulation**, CMES-Computer Modeling in Engineering & Sciences, 2021, 127(2), 753-769.

[Saleem, Muhammad Umer.](#), Aslam, Muhammad., Akgul, Ali., Farman, M., Bibi, Rabia., **Controllability of PDE's Model for Type 1 Diabetes**, Mathematical Methods in the Applied Sciences, 2021, Special Issue, 1-9.

Farman, M., Akgul, Ali., Mlaiki, Nabil., Abdeljawad, Thabet., [Saleem, Muhammad Umer.](#), Ahmad, Aqeel., **Analysis of HIV/AIDS Model with Mittag-Leffler Kernel**, AIMS Mathematics: Mathematical and Numerical Models in Fractional Calculus: Analysis and Applications, 2022, 7(7), 13383–13401.

Farman. M., Ahmad, Aqeel., Akgul, Ali., [Saleem, Muhammad Umer.](#), Nisar, Kottakkaran., **Dynamical Behavior of Tumor-Immune System with Fractal-Fractional Operator**, *AIMS Mathematics: Mathematical and Numerical Models in Fractional Calculus: Analysis and Applications*, 2021, 7(5), 8751-8773.

Farman, M., Raza, Ali., Akgul, Ali., [Saleem, Muhammad Umer.](#), Ahmad, Aqeel., Iqbal, Sajid., **Analysis and Modelling of HIV/AIDS Model with Fractional-Order Parameter Estimation**, *Progress in Fractional Differentiation and Applications*, 2022, 8(2), 217-230..

Akgul, Ali., Farman, M., Ahmad, Aqeel., [Saleem, Muhammad Umer.](#), **Bacillus Calmette Guerin (BCG) Immunotherapy for Bladder Cancer: A Control and Mathematical Analysis**, *International Journal of Applied and Computational Mathematics*, 2021, 7:254, 1-11.

Muhammad Farooq, Mian., Mohsin, Muhammad., Farman, Muhammad., Akgul, Ali., [Saleem, Muhammad Umer.](#), **Generalization of the Method of Generating the Continuous Nested Distributions**, *International Journal of Nonlinear Sciences and Numerical Simulation*, 2022, (0231), 1-27.

Conferences

Afzal, Shahzad., [Saleem, Muhammad Umer.](#), **Using product-like structures in sparse-matrix computations**, *Proceedings of the 2009 Conference on Algebraic Graph Theory in the Celebration of Gert Sabidussi's Eightieth Birthday, June 1-7, 2009*, Inter-University Center Dubrovnik, Croatia.

[Saleem, Muhammad Umer.](#), **Seronsen's Model for Normal and Type I Diabetes.**, *Seminar on Optimization and Control in Physiological Systems, June 29, 2010*, KFU, Graz, Austria.

[Saleem, Muhammad Umer.](#), **Controllability and Observability in GI systems**, *Conference on Recent Advances in Mathematical Methods, Models & Applications, April 16-17, 2011*, CASM, LUMS, Lahore, Pakistan.

[Saleem, Muhammad Umer.](#), **Control for Artificial Pancreas in Human**, *1st UMT National Conference on Pure and Applied Mathematics, March 7-8, 2015*, UMT, Lahore, Pakistan.

[Saleem, Muhammad Umer.](#), **A Linear Control of Hovorka Model**, *International Conference on Recent Advances in Applied Mathematics, December 17-18, 2015*, CIIT, Lahore, Pakistan.

Saleem, Muhammad Umer., **Control of Augmented Minimal Model**, 2nd UMT National Conference on Pure and Applied Mathematics, *October 5-7, 2017*, UMT, Lahore, Pakistan.

Farman, M., Saleem, Muhammad Umer., **Numerical Analysis of a Fractional Order Model for Acute and Chronic Hepatitis B by Using Laplace Adomian Decomposition Method**, 6th International Conference on Education; Science Beyond Classroom, *March 15-17, 2018*, UE, Lahore, Pakistan.

Zahid, A., Saleem, Muhammad Umer., **Spanning Simplicial Complex of Wheel Graph W_n** , 6th International Conference on Education; Science Beyond Classroom, *March 15-17, 2018*, UE, Lahore, Pakistan.

Khalid, Maryam., Saleem, Muhammad Umer., **Controllability and Observability of a Immunotherapy and Chemotherapy Model (Poster)**, 6th International Conference on Education; Science Beyond Classroom, *March 15-17, 2018*, UE, Lahore, Pakistan.

Saleem, Muhammad Umer., **Fractional Order Derivative Model for Artificial Pancreas**, International Conference on Recent Advances in Applied Mathematics 2019, *February 20-22, 2019*, CUI, Lahore Campus, Lahore, Pakistan.

Saleem, Muhammad Umer., **Stability Analysis of GIG System in Humans**, Garrison International Conference on Pure and Applied Mathematics 2019, *April 1-3, 2019*, LGU, Lahore, Pakistan.

Saleem, Muhammad Umer., **How Mathematical Modeling can be Used in Medical Treatment**, OeAD Alumni Talk, *November 04, 2019*, TU Graz, Austria.

Saleem, Muhammad Umer., **Outcomes of Research Project**, Science Workshop: University of Istanbul, Turkey, *February 10, 2020*, Istanbul, Turkey.

Saleem, Muhammad Umer., **Virtual Heidelberg Laureate Forum 2020: Traversing Separation**, Heidelberg Laureate Forum, *September 21-25, 2020*, Heidelberg, Germany.

Saleem, Muhammad Umer., **Epidemiological Analysis of the Coronavirus Disease Outbreak with Random Effects**, The 2nd International Conference on Nanotechnology and its Applications 2021, *July 07-08, 2021*, Cihan University in Erbil, Iraq.

Saleem, Muhammad Umer., 8th Heidelberg Laureate Forum 2021, Heidelberg Laureate Forum, *September 20-23, 2021*, Heidelberg, Germany.

Saleem, Muhammad Umer., **Online: Gulf Higher Education Summit**, Gulf Higher Education Conference 2021, *October 10-11, 2021*, Alhambra US Chamber, Austin, USA.

Research Supervision

PhD Theses

- **Co-Supervised**

1. **Scholar:** Muhammad Farman
Title: An Approach for Artificial Pancreas to Control the Type-I Diabetes Mellitus
Passing Year: 2019
Institution: The University of Lahore, Lahore, Pakistan.

MS/M.Phil Theses

- **Supervised**

1. **Scholar:** Ayesha Javed
Title: Security Enhancement using ECC and Compression Techniques
Passing Year: 2022 (In progress)
Institution: University of Education, Lahore, Pakistan.
2. **Scholar:** Mehreen Ashraf
Title: Modelling and Numerical Investigation of Fractional-Ordered Cardiovascular System
Passing Year: 2022 (In progress)
Institution: University of Education, Lahore, Pakistan.
3. **Scholar:** Ali Kamran
Title: Controllability and Observability of Sorensen's Model with Stability Analysis
Passing Year: 2022 (In progress)
Institution: University of Education, Lahore, Pakistan.
4. **Scholar:** Waheed Mustafa
Title: Simulation of Coronavirus Model and its Analysis
Passing Year: 2022 (In progress)
Institution: University of Education, Lahore, Pakistan.
5. **Scholar:** Muhammad Aziz Ali
Title: Analytical Solutions of Some Nonlinear PDEs via $Exp(-\phi(\Xi))$ -Expansion Method
Passing Year: 2021 (In progress)
Institution: University of Education, Lahore, Pakistan.

6. **Scholar:** Sajjad Rasool
Title: Analytical Solutions of Some Nonlinear PDEs via $(\frac{G'}{G})$ -Expansion Method
Passing Year: 2021
Institution: University of Education, Lahore, Pakistan.
7. **Scholar:** Rafiq Ali
Title: Prime Factor Decomposition with respect to Cartesian and Direct Product
Passing Year: 2021 (In progress)
Institution: University of Education, Lahore, Pakistan.
8. **Scholar:** Areen Rasool
Title: Novel Decision-Making Models based on Bipolar Fuzzy Information
Passing Year: 2021
Institution: University of Education, Lahore, Pakistan.
9. **Scholar:** Muhammad Zaeem Aslam
Title: Face Attractive Index by Facial Features
Passing Year: 2020
Institution: University of Education, Lahore, Pakistan.
10. **Scholar:** Huma Aslam
Title: Evaluation of a Model for Artificial Pancreas
Passing Year: 2020
Institution: University of Education, Lahore, Pakistan.
11. **Scholar:** Nayab Mansha
Title: Controllability and Observability of a Hemodialysis Model
Passing Year: 2019
Institution: University of Education, Lahore, Pakistan.
12. **Scholar:** Maria Nisar
Title: Face Attractiveness Index by Symmetry, Neoclassical Canons and Golden Ratios
Passing Year: 2019
Institution: University of Education, Lahore, Pakistan.
13. **Scholar:** Ayesha Khan
Title: Behavior of Face Attractiveness Index Relative to Age
Passing Year: 2019
Institution: University of Education, Lahore, Pakistan.
14. **Scholar:** Nazia
Title: Control and Stability of Meal Responses GI Model
Passing Year: 2018
Institution: University of Education, Lahore, Pakistan.

- 15. Scholar:** Sidra Saleem
Title: Control of Solute Kinetics in Hemodialysis Patients
Passing Year: 2016
Institution: University of Education, Lahore, Pakistan.
- 16. Scholar:** Maryam Khalid
Title: Controllability and Observability of Immunotherapy and Chemotherapy Model
Passing Year: 2016
Institution: University of Education, Lahore, Pakistan.
- 17. Scholar:** Mehwish Khan
Title: Spanning Simplicial Complex of the Fan Graph
Passing Year: 2015
Institution: University of Education, Lahore, Pakistan.
- 18. Scholar:** Umair Ahmad
Title: SSC of the Prism Graph
Passing Year: 2015
Institution: University of Education, Lahore, Pakistan.
- 19. Scholar:** Muhammad Tashfeen
Title: SSC of the Book Graph
Passing Year: 2015
Institution: University of Education, Lahore, Pakistan.
- 20.Scholar:** Sidra Saleem
Title: Cartesian Product of Paths and Cycles
Passing Year: 2015
Institution: University of Education, Lahore, Pakistan.
- 21.Scholar:** Rabia Fiaz
Title: Direct Product of Paths and Cycles
Passing Year: 2015
Institution: University of Education, Lahore, Pakistan.
- 22.Scholar:** Ayesha Zahid
Title: Spanning Simplicial Complex of the Wheel Graph
Passing Year: 2015
Institution: University of Education, Lahore, Pakistan.
- 23.Scholar:** Farhana Yasmeen
Title: Use of Homotopy Analysis Method to solve Ninth and Thirteenth Order BVPs
Passing Year: 2014
Institution: University of Education, Lahore, Pakistan.
- 24.Scholar:** Ali Raza
Title: Body Mass Index Effect on Human Dialysis
Passing Year: 2013
Institution: University of Education, Lahore, Pakistan.

25.Scholar: Muhammad Farman
Title: Control for Artificial Pancreas in Human
Passing Year: 2013
Institution: University of Education, Lahore, Pakistan.

• **Co-Supervised**

1. **Scholar:** Ammara Salman
Title: Prime Factor Decomposition with respect to Strong Product
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
2. **Scholar:** Ayesha Parveen
Title: Prime Factor Decomposition with respect to Direct Product
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
3. **Scholar:** Momina Naz
Title: Prime Factor Decomposition with respect to Cartesian Product
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
4. **Scholar:** Syeda Maria Tanveer
Title: Prime Factor Decomposition with respect to Lexicographic Product
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
5. **Scholar:** Rabia Zaheer
Title: Elliptic Curve Cryptography using Composition Cipher
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
6. **Scholar:** Maryam Noor
Title: Designing Low Bit Cipher to Improve Security Communication
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
7. **Scholar:** Munazza Latif
Title: Introducing Effective Cipher to Improve Security
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
8. **Scholar:** Gul Fakiha Younas
Title: Developing Techniques to Secure Communication Data
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.

- 9. Scholar:** Samra Shahzadi
Title: Composition of Minimal Length Key for Optimal Security by Elliptic Curve Cryptography
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
- 10.Scholar:** Kanza Mahay-ud-Din
Title: Generating Sophisticated Cipher to Communicate in Efficient Way
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
- 11.Scholar:** Memooona Hassan
Title: Developing Effective Cipher to Improve Efficiency of Communication
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
- 12.Scholar:** Zobia Suliman
Title: An Iterative Scheme for the Solution of Non-Linear Equations
Passing Year: 2019
Institution: University of Sargodha, Women Campus, Faisalabad.
- 13.Scholar:** Sanober Gul
Title: Higher Order Iterative Method by Admomial Decomposition Method for Non-Linear Equations
Passing Year: 2018
Institution: University of Sargodha, Women Campus, Faisalabad.
- 14.Scholar:** Sumaira Yasmin
Title: Prime Factor Decopostion of Graphs with respect to Cartesian/Strong Graph Products
Passing Year: 2018
Institution: University of Sargodha, Women Campus, Faisalabad.
- 15.Scholar:** Rabia Iqbal
Title: Comparison of Methods for Non-Linear Equations Solutions by C and Java Computer Languages
Passing Year: 2017
Institution: University of Sargodha, Women Campus, Faisalabad.
- 16.Scholar:** Safeera Sarwar
Title: A New Cipher by Using Elliptic Curves
Passing Year: 2017
Institution: University of Sargodha, Women Campus, Faisalabad.

17.Scholar: Rabia Bibi

Title: Controllability of Absorption of Subcutaneously Injected Insulin by Return Method

Passing Year: 2017

Institution: University of Sargodha, Women Campus, Faisalabad.

References

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