Dr. MUHAMMAD ILYAS FAKHIR

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Objective

I would like to devise captivating, fascinating, and unique practices of teaching that creates interest in the students. With the help of my convivial nature, I would like to build good rapport with students as well as teachers around me.

Education

Ph.D(CS)	GC University, Lahore	2013-2019
M.S (CS)	University of Central Punjab, Lahore	2010-2012
MCS	IQRA University, Karachi	2001-2003
M.Sc(Mathematics)	Govt. F.C. College, Lahore	1996-1998
B.Sc	Govt. College, Sargodha	1993-1995

Teaching Experience

Assistant Professor	GC University, Lahore	2015-to Date
Lecturer	GC University, Lahore	2008-2015
Lecturer	IQRA Millennium University, Lahore	2005-2008
Lecturer	The Global College, Lahore	2004-2005

Teaching Expertise

I have taught & have been teaching the following subjects to Graduate & Post Graduate classes:

- Design & Analysis of Algorithm
- Theory of Automata
- Graph Theory
- Compiler Construction
- Digital Image Processing
- Graph Theory & Its Formal Aspects
- Graph Theory for Machine Learning
- Advanced Theory of Computation
- Advanced Analysis of Algorithms
- Computer Networks

Research & Publication

- Sher Afzal Khan, Farooq Ahmad and **Ilyas Fakhir**,(2012) "Structural Analysis Methods for Petri Net based Control Systems: a Review", **Journal of American Science**, 8(12), 834-843.
- Farooq Ahmad, **Ilyas Fakhir**, Sher Afzal Khan (2012) "A Survey on Linear Algebraic Techniques for the Analysis of Petri Net based Models", **Research Journal of Recent Sciences,** 2(5), 21-28.
- [Book] **Ilyas Fakhir**, Farooq Ahmad and Sher Afzal, (2012) "Petri Net based Multi-Elevator System with Multi-Agent Environment: Uses of Petri Nets for Elevator Systems", **LAP Lambert Academic Publishing**.
- **Ilyas Fakhir**, Farooq Ahmad, Sher Afzal Khan and Yaser Daanial Khan, (2014) "Petri Net based Modeling and Control of Elevator System", Neural Computing & Applications, **Springer, 24(5-8), 1601-1612**.

- Awais Qasim, Asad Raza Kazmi, **Ilyas Fakhir** (2015) "Executable Semantics for the formal specification and verification of E-Agents", Indian Journal of Science and Technology, India, 8(16), 1-8.
- Awais Qasim, Asad Raza Kazmi, **Ilyas Fakhir** (2015) "Critical analysis regarding Cognition of Intelligent Distribution Agent", Science International, Pakistan.
- **Ilyas Fakhir**, Asad Raza Kazmi & Awais Qasim (2016) "Concurrency in Intuitionistic Linear-Time μ-Calculus: A Case study of Manufacturing System", Indian Journal of Science and Technology, India, 9(6), 1-7.
- **Ilyas Fakhir**, Asad Raza Kazmi, Awais Qasim & Farooq Ahmad (2016) "A Learning-Based Autonomous System for Driving a Car using CLARION", International Journal of Computer Science and Information Security (IJCSIS), USA, 14(12), 730-740.
- Awais Qasim, Asad Raza Kazmi, **Ilyas Fakhir** (2015) "Formal Specification and Verification of Real-Time Multi-Agent System using Timed Arc Petri Nets", Advances in Electrical and Computer Engineering, Romania, 15(3):73-78.
- Rafique, I., Gul, H., Rafique, S., Kazmi, S. A. R., Qasim, A., & **Fakhir, I**. (2017). Optimized Application Level Checkpoint Based Load Sharing Model for Heterogeneous Mobile Grid Computing. Indian Journal of Science and Technology, *10*(28).
- **Ilyas Fakhir**, Asad Raza Kazmi (2018) "Formal Specification and Verification of Self-adaptive Concurrent Systems", IEEE Access, 6(1): 34790-34803.
- Awais Qasim, Zeeshan Aziz, Syed Asad Raza Kazmi, Adnan Khalid, **Ilyas Fakhir**, Jawad Hassan (2020) "Intelligent agent for formal modelling of temporal multi-agent systems", International Journal on Smart Sensing and Intelligent Systems, 13(1).
- Atif Ishaq Khan, Syed Asad Raza Kazmi, Ayesha Atta, Muhammad Faheem Mushtaq, Muhammad Idrees, **Ilyas Fakhir**, Muhammad Safyan, Awais Qasim (2021) "Intelligent Cloud Based Load Balancing System Empowered with Fuzzy Logic", CMC-Computers, Materials & Continua, 67(1): 519-528.
- **Ilyas Fakhir,** Maham Tahir, Asad Raza Kazmi, Awais Qasim and Atif Ishaq (2021) "Formal Modeling and Verification of E-learning based adaptive system", Journal of Critical Reviews, 8(1): 693-706.
- Asad Raza Kazmi, Maryam Kanwal, **Ilyas Fakhir**, Awais Qasim, Atif Ishaq (2022) "Automated Verification of Star-Vote in the Applied Pi Calculus", VFAST Transactions on Software Engineering,10(4): 175-180.
- Awais Qasim, Saira Hussain, Shuja-ur-Rehman Baig, **Ilyas Fakhir**, Muhammad Bilal, and Adeel Munawar (2023) "Prioritization of Exigency Services in Multi-Agent Transportation Systems", VFAST Transactions on Software Engineering,11(1): 12-24.
- **Ilyas Fakhir**, Asad Raza Kazmi, Awais Qasim, Atif Ishaq (2023) "SMACS: A Framework for Formal Verification of Complex Adaptive Systems", Open Computer Science, 13(1): 20220275.
- **Ilyas Fakhir**, Amber Razzaq, Asad Raza Kazmi, Awais Qasim (2023) "Formal Modeling and Analysis of Air Traffic Control System Using Petri Nets", VAWKUM Transactions on Computer Sciences, 11(2): 35-48.
- Atif Ishaq, Hassan Saud, Asad Raza Kazmi, **Ilyas Fakhir** (2024) "Database Security Empowered with Independent Field Encryption", VAWKUM Transactions on Computer Sciences, 12(1): 125-135.
- Awais Qasim, Hanaa Nafea, Attiya Hussain, **Ilyas Fakhir** (2025) "Blockchain-based Reputation Model for Vehicle Platooning with Common Global Goal", Multiagent and Grid Systems, 21(1): 21-37.
- **Ilyas Fakhir**, Zeeshan Khalil, Awais Qasim, Umair Khalil (2025) "Effective diagnosis of brain tumor classification by using novel DCNN", Computer Science Journal of Moldova, (accepted).

Research Profile

- Currently I am working as Assistant Professor in the Department of Computer Science, Government College University Lahore. I graduated from Iqra University in 2003 and Joined Iqra University as a Lecturer. I joined GC University as a Lecturer in February 2008. I did my MSCS degree from University of Central Punjab in 2012 and then completed my PhD degree from the GC University Lahore in 2019. My research areas include Petri Nets, multi-agent systems, Concurrent systems, self-adaptive systems, Image Processing and Graph Theory. More than 25 MSCS students have completed their thesis under my supervision, one PhD student and 4 students of MSCS are still working. I have authored 20 research papers in peer-reviewed ISI indexed journals.