



## Experience

- Lecturer** **Government College University (GCU), Lahore – Pakistan**  
Served as a **faculty member** at (Electrical) Engineering Department between May 2012 and September 2019; Primary responsibilities included **UG teaching** and **supervising UG Final-Year Projects**;
- Lab Engineer/ Lecturer** **University of Management & Technology (UMT), Lahore – Pakistan**  
Served as a **faculty member** at Electrical Engineering Department during (February 2011 – May 2012)
- Controls Engineer** **Energy Systems (Pvt.) Ltd., Lahore – Pakistan** (Aug. 2010 – Feb. 2011)

## Education

Qualification	Tenure/ Year of Passing	Institution	CGPA/ %age
<b>Ph. D. Electrical Engineering</b>	2025	Information Technology University, Lahore – Pakistan	<b>3.89/ 4.0</b>
<b>M. Sc. Electrical Engineering</b>	2017	University of Engineering & Technology, Lahore – Pakistan	<b>3.76/ 4.0</b>
<b>B. Sc. Electrical Engineering</b>	2006 – 2010	University of Engineering & Technology, Lahore – Pakistan	<b>3.64/ 4.0</b>
Higher Secondary School Certificate	2004 – 2006	Board of Intermediate & Secondary Education, Lahore – Pakistan	<b>85%</b>
Secondary School Certificate	2002 – 2004	Board of Intermediate & Secondary Education, Lahore – Pakistan	<b>77.2%</b>

## Research Work/ Interests

- Ph. D. Thesis** **Design and Development of Efficient Nanostructured Metamaterials for Next Generation Thermophotovoltaics**
- M. Sc. Thesis** **Indoor Photovoltaic System Design & Modeling**  
Modeled and simulated the working of an IPVS using OptiSystem<sup>®</sup>
- B. Sc.** **IP Multimedia Subsystems Implementation**

## Research Publications

1. **S Ijaz**, D. Kang, A.S. Rana, J. Kim, M.T. Saeed Chani, M. Zubair, Q. H Abbassi, M.Q. Mehmood, J. Rho “Metasurface Absorber–Emitter Pair-Integrated High-Efficiency Thermophotovoltaic System”. *ACS Photonics*, July 3, 2025
2. **S. Ijaz**, E. Raza, Z. Ahmed, M. Zubair, M.Q. Mehmood, H. Mehmood, Y. Massoud and M. M. Rehman, “Numerical simulation to optimize the efficiency of HTM-free perovskite solar cells by ETM engineering.” *Solar Energy*, vol. 250, pp. 108-118, 2023
3. **S. Ijaz**, M.Q. Mehmood, H. Cabrera, M. Zubair, Y. Massoud, “Ultra-broadband UV–VIS–NIR absorbers via nanostructured refractory nitrides.” *MRS Energy & Sustainability*, Pages 1-17, 2024

4. **S. Ijaz**, A. S. Rana, Z. Ahmed, B. Rehman, M. Zubair and M.Q. Mehmood, "Exploiting zirconium nitride for an efficient heat-resistant absorber and emitter pair for solar thermophotovoltaic systems." *Optics Express*, vol. 29, pp. 31537-31548, 2021.
5. **S. Ijaz**, A. S. Rana, Z. Ahmed, M. Zubair, Y. Massoud, and M.Q. Mehmood, "The Dawn of Metadevices: From Contemporary Designs to Exotic Applications." *Advanced Devices & Instrumentation*, vol. 2022, 2022.
6. **S. Ijaz**, M. Q. Mehmood, Z. Ahmed, K. A Aljaloud, A. H Alqahtani, Y. Al-Adidi, R. Hussain, "Efficient Solar energy harvesting via thermally stable tungsten-based nanostructured solar thermophotovoltaic systems." *Materials Today Communications*, Pages 109967, 2024
7. **S. Ijaz**, S. Noureen, B. Rehman, M. Zubair, Y. Massoud, M. Q. Mehmood, "Multi-Material Described Metasurface Solar Absorber Design with Absorption Prediction Using Machine Learning Models." *Materials Today Communications*, Pages 106377, 2023
8. **S. Ijaz**, S. Noureen, B. Rehman, M. Zubair, M. Q. Mehmood, Y. Massoud, "A Machine Learning-based Approach to Model Highly-thermally Robust Metasurface Absorber," *Proceedings of the 2022 Conference on Lasers and Electro-Optics Pacific Rim*, (31 Aug, 2022)
9. **S. Ijaz**, A.S. Rana, M. Zubair, and M. Q. Mehmood, "Investigating sunlight trapping efficiency of an ultrathin, ultrabroadband, thermostable, zirconium nitride (ZrN)-based metasurface for solar thermophotovoltaic systems," *Proceedings Volume 12150, Photonics for Solar Energy Systems IX; 1215007 SPIE Photonics Europe*, (24 May 2022), <https://doi.org/10.1117/12.2615502>.
10. **S. Ijaz**, A. Zulfiqar, B. Rehman, Q.H. Abbasi, M Zubair, M. Q. Mehmood, "Machine learning for metasurfaces broadband absorber design", *Proceedings Volume 13011, Data Science for Photonics and Biophotonics; SPIE Photonics Europe*, 2024, <https://doi.org/10.1117/12.3022094>
11. **S. Ijaz**, S. Noureen, B. Rehman, M. Zubair, M. Q. Mehmood, Y. Massoud, "Application of machine-learning techniques for characteristic analysis of refractory materials," *Proceedings Volume 12313, Photonics for Energy II; 1231307 SPIE/COS Photonics Asia* (16 Dec, 2022) <https://doi.org/10.1117/12.2643946>.
12. **S. Ijaz**, A.S. Rana, M. Zubair, and M. Q. Mehmood, "Evaluating the most efficient 2D ZrN nanostructures for broadband metasurface absorbers," *Proceedings Volume 12004, Integrated Optics: Devices, Materials, and Technologies XXVI; 120040T SPIE OPTO*, (5 March 2022), <https://doi.org/10.1117/12.2607885>.
13. **S. Ijaz**, A.S. Rana, M. Zubair, and M. Q. Mehmood, "Ultra-black Pythagorean-tree metasurface antenna array based absorber and emitter for applications in solar thermophotovoltaics," *1st International Conference on Microwave, Antennas & Circuits (ICMAC)*, pp. 1-4, 2021.
14. S. Noureen, I.H. Syed, **S. Ijaz**, A. A. Abdellatif, H. Cabrera, M. Zubair, Y. Massoud<sup>d</sup>, M. Q. Mehmood "Physics-driven tandem inverse design neural network for efficient optimization of UV-Vis meta-devices." *Applied surface science advances*, 18 (2023) 100503

## Skills

**Programing Tools:** Python and MATLAB

**Simulation & Design Tools:** CST, Lumerical, AutoCad, SCAPS, PVSyst, Xilinx, Proteus

**Office Tools:** MS-Word, MS-Excel, MS-Power point, MS-Publisher