

Executive Summary

PhD Electrical Engineer with over 20 years of cumulative experience in optoelectronics, laser sensing, biomedical instrumentation, and AI. Proven leader of multimillion research consortia, accredited programs, and interdisciplinary teams. Translates research into industry-ready solutions.

Work Experience History

- Professor at PIMSAT 10/2024-
- Associate Professor at PIMSAT 9/2023-9/2024
- Assistant Professor at Faculty of Electrical and Electronics Engineering, University of Engineering and Technology, Taxila 2/2017-9/2023
- Assistant/Associate Professor, Various Universities 10/2014-1/2017
- Research Instructor/Team Lead, University of Kassel 6/2010-9/2014
- Led research in optoelectronics, photonics, semiconductor laser sensors, biomedical instrumentation, AI and machine learning, image processing, robotics, and communication systems.
- Managed national and international research collaborations, grant acquisition, and technology deployment.
- Led curriculum development, accreditation processes, and academic program standardization across university campuses.
- Established research laboratories, supervised final-year design projects, and guided technology commercialization initiatives.
- Coordinated with industrial partners for prototyping, product testing, and applied research trials.
- Time-resolved proof of concept of patents DE102004037519B4, US8120075B2, PCT/DE 2005/001179, EP1771720B1, EP000001771720A1 (GiNO Innovation Award (2005), pinpoint Detection GbR (2007), EXIST-SEED (2005)), in technical and multimillion financial consortium with B.Braun Melsungen AG, Deutsche Akademische Austausch Dienst (DAAD), University of Kassel and Higher Education Commission (HEC).

Key Skills

- Technical: *Optical and Semiconductor Sensors, Photonics, Biomedical Instrumentation, AI & Machine Learning (Deep Learning, Neural Networks), Computer Vision, Signal/Image Processing, Robotics and Automation, Communication Systems, Renewable Energies*
- Research & Development: *R&D Strategy, Product Development, Technology Transfer, Innovation Management, Scientific Writing, Research Funding and Grant Management, Prototype Testing, Patent Authentication, Clinical Research.*
- Academic Leadership: *Curriculum Development and Accreditation, Teaching and Mentorship, Research Grant Management, Peer-Reviewed Publications, Conference Presentations, Program Accreditation, Stakeholder Engagement.*
- Professional: *Project Management (Agile, Scrum), Cross-Functional Team Leadership, Risk Management, Business Development, Product Lifecycle Management (PLM), Industry Partnerships.*

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Professional Engineer Pakistan Engineering Council

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AASCIT: <http://www.aascit.org/membership/usmanmasud>

Education

- **PhD. Electrical Engineering, University of Kassel, Germany** 2014
- Thesis: Investigations on highly sensitive optical semiconductor laser based sensorics for medical and environmental applications – ‘the Nanonose’ (time based proof of concept for patent DE 102004037519 B4 and US 2009 0141279 A1)
- **MSc Electrical Engineering, University of Kassel, Germany** 2010
- Thesis: Design of Tight Gabor Frames via Semidefinite Programming in MATLAB
- **Postgraduate Diploma in Telecommunications Engineering, National University of Sciences and Technology** 2007
- **BSc Electrical Engineering, University of Engineering and Technology, Taxila** 2005
- Thesis: Design of an FPGA board for implementation of Genetic Algorithms

Publications

Journals: 38

Conferences : 71

Courses: 58

Workshops and Seminars: 359