DR. INAM ULLAH

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SUMMARY OF QUALIFICATIONS

- Data Scientist with 5+ years' experience in AI and ML, fraud detection, and big data analytics.
- Proven success leading 10+ end-to-end projects (NSF USA, British Council, UK, and 6G Network optimisation EU) using large-scale datasets for forecasting, optimization, and strategic decision-making.
- Contributed to synthetic data generation (Improved model performance by 11%), feature engineering (reduced computational cost by 11%), and development of novel boosting and stacked generalization models for accurate prediction (improved model performance by 23%), recognized with 10,000+ paper downloads on IEEE Xplore.
- Strong background in Python, R, and SQL, with 15+ peer-reviewed publications and a focus on translating AI solutions into high-impact, real-world outcomes.

RESEARCH EXPERIENCE

Research Fellow *(Innovation Engine Project, Southern Methodist University, Texas)* *Aug 2024–Present*

- Designed ML pipeline to identify and benchmark "innovation deserts" across 3,222 counties using KPCA + GBM, driving policy recommendations for NSF Engines.
- Reduced model training cost by 11% and improved anomaly detection AUC by 15% using synthetic datasets and hybrid models.
- Proposed new carbon-penalizing objective function to optimize regional renewable energy integration.
- Delivered dashboards to stakeholders with actionable regional KPIs; prioritization across 65 U.S. metros.

Research Fellow *(Edge Hill and Lancaster Universities, Lancashire, UK)* *Jun 2023–Jul 2024*

- Conducted research on network efficiency and security optimization in next-generation wireless systems.
- Enhanced heterogeneous IoT system performance through hardware-software optimization.
- Developed AI-driven security solutions for smart grid and communication networks.
- Designed curricula on AI applications in electrical engineering and digital forensics.

TEACHING EXPERIENCE

Assistant Professor *(COMSATS University Islamabad, Pakistan)* *Jan 2022–May 2023*

- **Module Taught**: Computer Programming, Artificial Intelligence, Machine Learning, Control Systems.
- **Laboratory Supervision**: Electronics Labs, Power Systems Labs, Computer Programming Labs.
- **Student Supervision**: Supervised 15+ undergraduate capstone projects and 8+ graduate research projects focusing on power systems, renewable energy, and AI applications.
- **Assessment and ABET Alignment**: Developed course assessments aligned with ABET student outcomes, including problem-solving, design experience, and professional communication skills.

AWARDS AND ACHIEVEMENTS

- **UK Global Talent Visa**- Recognized for exceptional contributions to electrical & computer engineering research.
- **Best PhD Scholar** - School of Engineering, Lancaster University.
- **PhD Scholarship** - Lancaster University, UK (2018-2022).
- **Published Research in Top-Tier Journals** - IEEE Trans. on Smart Grid, Power Systems, and Instrumentation & Measurement, and many other Elesevier Publisher Journals.
- **Major Funded Research Contributor** - NSF (USA), British Council (UK), and EU SANCUS projects.

EDUCATION

University of Lancaster, UK *2018-2022*
PhD in Electrical Engineering(Data Science Focus)
Dissertation: Data Driven Modeling and Control in smart grids

COMSATS University Islamabad, Pakistan *2011-2012*
Master in Electrical Engineering (Power Systems)

EXTERNAL FUNDING AND RESEARCH GRANTS

- **The Leverhulme Trust Programme**: "Self-Aware Power Networks: Autonomous Operation at Scale" ($250,000) - Key Contributor (2024-2027)
- **EPSRC Programme**: "Autonomous Inspection for Responsive and Sustainable Nuclear Fuel Manufacture" ($1,300,000) - Contributor (2021-2024)
- **EPSRC Programme**: "National Centre for Nuclear Robotics" ($15,400,000 total) - Contributor (2017-2022)
- **British Council UK-Saudi Challenge Fund**: "AI and Digital Forensics Curricula Development" ($95,000) - Contributor (2023-2024)
- **NSF Collaborative Projects**: Multiple projects focusing on smart sensors, power systems, and AI applications in electrical engineering

SELECTED PUBLICATIONS (ORCID: 0000-0002-8130-3016)(15+ TOTAL)

- **Inam Ullah**, Arshid Ali, C. Taylor, and X. Ma, "Data-Driven Insights: Boosting Algorithms to Uncover Electricity Theft Patterns in AMI", *IEEE Transactions on Instrumentation and Measurement*, 2025.
- **Inam Ullah**, Khaled Abdelghany, "Energy, Transportation, and Environment: A Graph Learning Framework for Multi-Sectoral Innovation Ecosystems", *IEEE Transactions on Knowledge and Data Engineering* (Submitted).
- **Inam Ullah**, "A Predictive Analytics Framework for Policy-Driven Benchmarking and Promotion of Innovation Productivity in U.S. Cities", *IEEE Transactions on Engineering Management* (Revisions submitted).
- **Inam Ullah**, "From Deserts to Hubs: A Data-Driven Framework for Mapping Innovation Productivity in the U.S.", *IEEE Transactions on Computational Social Systems* (Revisions submitted).
- Muhammad Abbas, Yanbo Che, and **Inam Ullah**, "A Novel Stacked Ensemble Framework with the Kolmogorov-Arnold Network for Short-Term Electric Load Forecasting", *Elsevier Energy*, 137216, 2025.
- Ashraf Ullah, **Inam Ullah**, and Muhammad Zeeshan Younas, "Robust Resampling and Stacked Learning Models for Electricity Theft Detection in Smart Grid", *Elsevier Energy Reports*, vol. 13, pp. 770–779, 2025.
- Xiaohui Li, Weijia Lv, **Inam Ullah**, Bin Xie, and Ruijin Zhu, "Explainable Electricity Theft Detection With Gradient-Weighted Class Activation Mapping", *Electronics Letters*, vol. 61, no. 1, pp. 1–5, 2025.
- Muhammad Waqas, **Inam Ullah**, and George Aggidis, "Mitigating Intermittency in Offshore Wind Power Using Adaptive Nonlinear MPPT Control Techniques", *Energies*, 2025.
- **Inam Ullah**, N. Javaid, C. Taylor, and X. Ma, "Robust Data Driven Analysis for Electricity Theft Attack-Resilient Power Grid", *IEEE Transactions on Power Systems*, vol. 38, no. 1, pp. 537–548, 2022.
- **Inam Ullah**, N. Javeid, C. Taylor, and X. Ma, "A Stacked Machine and Deep Learning-Based Approach for Analysing Electricity Theft in Smart Grids", *IEEE Transactions on Smart Grid*, vol. 13, pp. 1633–1644, 2022.
- **Inam Ullah**, N. Javaid, C. Taylor, S. Baig, and X. Ma, "Heuristic Algorithm Based Optimal Power Flow Model Incorporating Stochastic Renewable Energy Sources", *IEEE Access*, vol. 8, pp. 148622–148643, 2020.
- **Inam Ullah**, N. Javaid, C. Taylor, K.A.A. Gamage, and X. Ma, "Big Data Analytics for Electricity Theft Detection in Smart Grids", *IEEE PES PowerTech*, 2021.
- **Inam Ullah**, N. Javaid, C. Taylor, K.A.A. Gamage, and X. Ma, "Optimal Power Flow Solution with Uncertain RES using Augmented Grey Wolf Optimization", *2020 IEEE PES PowerCon*, pp. 1–6, 2020.
- **Inam Ullah**, N. Javaid, C. Taylor, K.A.A. Gamage, and X. Ma, "Big Data Analytics Based Short Term Load Forecasting Model for Residential Buildings in Smart Grids", *IEEE INFOCOM Workshops*, 2020.
- M. Usman, Z.A. Khan, **Inam Ullah**, S. Javaid, and N. Javaid, "Data Analytics for Short Term Price and Load Forecasting in Smart Grids Using Enhanced Recurrent Neural Network", *2019 Sixth HCT Information Technology Trends (ITT)*, pp. 84–88, 2019.