NOOR KHAN

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Skoltech, Moscow, Russia
Visiting Researcher, KFUPM, Dhahran, Saudi Arabia

SUMMARY

Master's student in Energy Systems at Skolkovo Institute of Science and Technology with focus on smart grids, optimisation-based control, grid-forming inverters, and applied AI. Currently a Visiting Research Intern at KFUPM (QS Rank 67), working on hardware-level validation of adaptive droop control with AI-based contingency detection beyond RTDS simulation. Hands-on experience in real-time system testing and industrial power system protection and automation.

EDUCATION

MSc Energy Systems Sep 2024 – Present
Skolkovo Institute of Science and Technology (Skoltech), Moscow, Russia
GPA: 3.79/4.00
Focus: Smart grids, low-inertia power systems, optimisation-based control, and applied AI.
Advisor: Prof. Oleg Khamisov

BE Electrical Engineering (Gold Medalist) Jan 2019 – Dec 2022
Sukkur IBA University, Sukkur, Pakistan

WORK EXPERIENCE

Visiting Research Intern – Academic Mobility Program Jan 2026 – Present
King Fahd University of Petroleum & Minerals (KFUPM, QS Rank 67), Dhahran, Saudi Arabia

- Conducting hardware-in-the-loop validation of advanced control algorithms for grid-forming inverters.
- Integrating Python-based control and data-processing with real-time measurement and actuation systems.
- Collaborating with faculty researchers on experimental analysis and preparation of a journal publication.

Power System Protection & Automation Intern Jun 2025 – Jul 2025
Tekvel, Moscow, Russia

- Developed IEC 61850-based digital relay testing workflows using Tekvel Magic.
- Awarded *Best Industrial Immersion Project 2025*.

Engineering Intern May 2023 – Jun 2023
Power and Water Division (PWD), Skardu, Pakistan

- Assisted in monitoring and performance assessment of hydropower generation units.
- Contributed to fault analysis, upgrade recommendations, and technical documentation.

HONOURS AND AWARDS

- **Gold Medalist**, BE Electrical Engineering (Power), Sukkur IBA University, 2023
  Graduated top-ranked in the cohort for academic excellence.
- **Academic Mobility Scholarship**, Skoltech, 2025
  Awarded to one student for a funded research internship at a top-ranked university.
- **Winner – Best Industrial Immersion Project**, Skoltech, 2025
  Recognized for developing a real-time relay testing framework using Tekvel Magic.

- **National Talent Hunt Program (NTHP) Scholarship**, Sukkur IBA University, 2019
  Fully funded merit-based scholarship awarded to top students nationwide.
- **Prime Minister Laptop Scheme Award**, Government of Pakistan, 2023
  Awarded for academic excellence at the national level.
- **Third Place – National Book Review Competition**, Sukkur IBA University, 2019

PUBLICATIONS

N. Khan, et al., "*An Optimal Contingency-Sensitive Inertia and Damping Control for Grid-Forming Inverters*," in *Proceedings of the 7th International Conference on Control Systems, Mathematical Modeling, Automation and Energy Efficiency (SUMMA)*, Lipetsk, Russian Federation, Nov. 12–14, 2025.
IEEE, ISBN, doi: 10.1109/SUMMA68668.2025.11302304.

MANUSCRIPTS IN PREPARATION

Optimal Adaptive Droop Control with AI-Based Contingency Detection for Frequency Regulation in Low-Inertia Power Systems
Manuscript under final preparation for **IEEE Transactions on Power Electronics**.

Optimal Contingency-Sensitive Control for Virtual Synchronous Machine-Based Grid-Forming Inverters
Extended journal version of previously published conference work; in progress.

PROJECTS

Optimal Contingency-Sensitive Inertia and Damping Control for Grid-Forming Inverters
Developed and validated an optimisation-based inertia and damping control strategy for grid-forming inverters, achieving improved frequency nadir and RoCoF performance in low-inertia systems using RTDS-based IEEE 9-bus studies.

Dynamic Modeling of IEEE 9-Bus and IEEE 39-Bus Power Systems
Developed nonlinear dynamic models of IEEE 9-bus and IEEE 39-bus systems in Python, validated against RTDS simulations, and used for optimisation and control studies in ongoing journal work.

Frequency Regulation in Low-Inertia Power Systems
Designed and simulated a droop-controlled low-inertia microgrid to analyse frequency regulation under load disturbances and generator disconnection scenarios.

Design of a Hybrid Motorcycle
Designed and implemented a hybrid motorcycle by converting a conventional gasoline-powered motorcycle; presented at the SCONEST conference, Sukkur IBA University.

Design and Development of a Quadcopter from Scratch
Designed and fabricated a custom quadcopter including PCB design (EAGLE), hardware integration, and flight controller implementation using open-source MultiWii firmware.

CONFERENCES AND SEMINARS

- **7th International Conference on Control Systems, Mathematical Modeling, Automation and Energy Efficiency (SUMMA 2025)**, Lipetsk, Russia.
  Presentation: "An Optimal Contingency-Sensitive Inertia and Damping Control for Grid-Forming Inverters."
- **IEEE Student Conference on Engineering, Science and Technology**, Sukkur IBA University, 2021.
  Presented undergraduate final year project on hybrid motorcycle development.

- **IEEE Pakistan Student / Young Professionals / Women in Engineering Congress (PSYWC)**, Sukkur IBA University, 2019.
  Participation in technical sessions and professional development seminars.

VOLUNTEERING & LEADERSHIP

International Student Representative Sep 2024 – Present
Skolkovo Institute of Science and Technology (Skoltech), Russia
Represent international students and coordinate with university administration on students' matters.

General Secretary, IEEE Student Branch Jan 2021 – Jan 2022
Sukkur IBA University, Pakistan
Led organization of technical events and coordinated society activities.

Executive Member, Sports and Adventure Society Nov 2021 – Jul 2022
Sukkur IBA University, Pakistan
Supported event planning, team coordination, and operational management.

Content Writer Aug 2020 – Feb 2021
Read Pakistan
Produced educational content and supported outreach activities.

TECHNICAL SKILLS

Power & Simulation Tools	RTDS, MATLAB/Simulink, PSCAD, PSS®E, ETAP,, LabVIEW
Programming	Python, C++, Java
Design Tools	EAGLE (PCB Design), SolidWorks, AutoCAD, ANSYS Maxwell

LANGUAGES

1) English (Fluent); 2) Urdu (Fluent); 3) Burushaski (Native), 4) Dawoodi (Native); 5) Shina (Fluent)

INTERPERSONAL SKILLS

Teamwork, decision-making, adaptability, negotiation, networking, multicultural collaboration.

RECOMMENDATIONS

For recommendations, please contact my MSc advisor, Dr. Oleg Khamisov (O.Khamisov@skoltech.ru), and my mentor, Dr. Andrey Churkin (a.churkin@imperial.ac.uk).