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: 3.73/4.00
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

- Hardware validation of an optimal adaptive droop control framework with AI-based contingency detection on a practical microgrid, including integration of Python-based control and optimisation algorithms with real-time measurement and control interfaces.
- Collaboration with faculty experts in smart grids and control systems for result analysis and preparation of a high-impact journal publication.

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

- Developed and validated a differential relay testing framework using Tekvel Magic, enabling efficient and repeatable protection relay verification.
- Implemented a Python-based IEC 61850 Sampled Value generator to replace physical CTs, supporting digital testing using SV injection and GOOSE messaging.
- Awarded *Best Industrial Immersion Project 2025* for technical innovation and impact.

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

- **Academic Mobility Scholarship**, Skoltech, 2025
  Won the Academic Mobility Scholarship, awarded to only one student from the MSc Energy Systems cohort, enabling a three-month funded research internship at KFUPM, Saudi Arabia.

- **Winner – Best Industrial Immersion Project**, Skoltech, 2025
  Recognized for developing a real-time relay testing framework in Tekvel Magic for efficient protection relay validation.
- **Gold Medalist**, BE Electrical Engineering (Power Specialization), Sukkur IBA University, 2023
  Awarded to the top-ranked graduate in the cohort for exceptional academic performance.
- **National Talent Hunt Program (NTHP) Scholarship**, Sukkur IBA University, 2019
  Fully funded merit-based scholarship awarded to top 100 students nationwide for undergraduate studies.
- **Prime Minister Laptop Scheme Award**, Government of Pakistan, 2023
  Awarded based on academic excellence and performance 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 currently in the final drafting stage.

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, Nov. 12–14, 2025.
  Oral presentation: "An Optimal Contingency-Sensitive Inertia and Damping Control for Grid-Forming Inverters."
- **IEEE Student Conference on Engineering, Science and Technology**, Sukkur IBA University, Nov. 21, 2021.
  Presented undergraduate final year project on the design and development of a hybrid motorcycle.
- **IEEE Pakistan Student / Young Professionals / Women in Engineering Congress (PSYWC)**, Sukkur IBA University, Nov. 15–17, 2019.
  Participated in technical sessions and professional development seminars with focus on power systems, renewable integration, and emerging engineering technologies.

VOLUNTEERING & LEADERSHIP

International Student Representative Sep 2024 – Present
Skolkovo Institute of Science and Technology (Skoltech), Moscow, Russia
Elected to represent international students, work closely with university administration, and support academic and cultural integration initiatives.

General Secretary, IEEE Student Branch Jan 2021 – Jan 2022
Sukkur IBA University, Pakistan
Led planning and execution of technical events, coordinated society meetings, and managed cross-team collaboration to promote IEEE activities on campus.

Executive Member, Sports and Adventure Society Nov 2021 – Jul 2022
Sukkur IBA University, Pakistan
Contributed to event planning, team leadership, budgeting, and operational management of university-level sports and adventure activities.

Content Writer Aug 2020 – Feb 2021
Read Pakistan
Produced educational content including book summaries, supported content quality control, and collaborated with teams to expand outreach impact.

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

INTERPERSONAL SKILLS

Leadership, teamwork, adaptability, negotiation, decision-making, 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).