NOOR KHAN

Noor.Khan@Skoltech.ru
Skoltech, Moscow, Russia
Visiting Researcher, KFUPM, Dhahran, Saudi Arabia

SUMMARY

Master's student in Energy Systems at Skolkovo Institute of Science and Technology specializing in power system stability, grid-forming inverters, optimization-based control, and power system protection. Visiting Research Intern at KFUPM, focused on real-time hardware validation of adaptive droop control using RTDS and Python-based automation. Experience includes experimental validation, conference presentations, and award-winning industrial project work.

EDUCATION

MSc Energy Systems Sep 2024 – Present
Skolkovo Institute of Science and Technology (Skoltech), Moscow, Russia

BE Electrical Engineering (Power Specialization) 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), Dhahran, Saudi Arabia

- Hardware validation of an optimal adaptive droop control strategy on a practical microgrid, including integration of a Python-based control and optimization framework with real-time measurement and control interfaces.
- Experimental evaluation and performance benchmarking under load variations and generator outage scenarios against conventional fixed-droop control methods.
- 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

- I developed and validated a differential relay testing framework using Tekvel Magic.
- Implemented a Python-based IEC 61850 Sampled Value generator replacing physical CTs.
- Designed and executed digital protection tests using SV injection and GOOSE messaging.
- I was awarded Best Industrial Immersion Project 2025 for my work.

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 Excellence Scholarship**, Skolkovo Institute of Science and Technology (Skoltech), 2025
  Awarded in recognition of outstanding academic performance, in addition to an existing fully funded graduate scholarship.

- **Winner – Best Industrial Immersion Project**, Skolkovo Institute of Science and Technology (Skoltech), 2025
  Recognized for developing a real-time relay testing framework in Tekvel Magic enabling faster, cost-effective, and reliable 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
  Secured third position in a nationwide book review competition with participants from across Pakistan; awarded a laptop based on merit.

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 for Contingency-Sensitive Frequency Regulation
Manuscript in final preparation stage; expected submission within 1–3 months.

Optimal Contingency-Sensitive Control for Virtual Synchronous Machine-Based Grid-Forming Inverters
An extended journal version of previously published conference work, currently under progress.

PROJECTS

Optimal Contingency-Sensitive Inertia and Damping Control for Grid-Forming Inverters
Developed and validated an optimal contingency-sensitive inertia and damping control strategy for grid-forming inverters, demonstrating 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 the IEEE 9-bus and IEEE 39-bus systems in Python, validated transient responses against RTDS simulations, and utilized the models for optimization studies in a manuscript under preparation.

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

Design of a Hybrid Motorcycle
Designed and implemented a hybrid motorcycle by converting a conventional gasoline-powered motorcycle; presented the work at the Student Conference on Engineering, Science, and Technology (SCONEST), Sukkur IBA University.

Design and Development of a Quadcopter from Scratch
Designed and fabricated a custom quadcopter platform from scratch, including schematic capture and PCB design using EAGLE, hardware assembly, and flight controller implementation using open-source MultiWii firmware for stabilization and control.

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.