IMRAN KHAN

Ph.D. MICROSYSTEMS AND NANOFLUIDICS

Centre for Nanosciences and Nanotechnologies (C2N)
University of Paris-Saclay France

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CAREER OBJECTIVE

Looking for an opportunity to work in such an environment that provides professional development, valuable experience, and personal growth to become a good teacher, researcher, and contributor to ongoing research and development.

RESEARCH INTEREST

- Analog and digital circuits
- Microsystems.
- Embedded system
- Power Electronics
- Isolated gate driver
- Monolithic integrated circuit
- HIFU cancer therapy

SKILLS/TOOLS

- Cadence
- Altium PCB designer
- LTspice, Multisim
- MATLAB/Simulink
- Arduino, Raspberry-pi
- Latex
- MS Word, PowerPoint
- MS Visio

LANGUAGES

- English (IELTS: 6.5, TOEIC: 890/990)
- French (Basic)
- Korean (Basic)
- Urdu/Hindi (Native)
- Pashto (Native)

LINKS

EDUCATION

Ph.D. Microsystem and NanoBiofluidics Oct. 2019 – Jan. 2023
University of Paris Saclay, France

The research focused on the Analog Isolated Gate-driver Circuit, Capacitive Coupled based isolated information transmission system, High Intensity Focused Ultrasound (HIFU) based Cancer Therapy.

Master of Science, Electrical Engineering Sep. 2017 – Aug. 2019
Pusan National University, Busan, South Korea
CGPA 4.14/4.5

Studies focused on Power Electronics Design for Wind turbines, MOSFET & IGBT switches gate driver circuit, controller design for inverter, Single Phase Grid-connected inverter.

Bachelor of Science, Electrical Engineering Oct. 2012 – Nov. 2016
University of Engineering and Technology, Peshawar, Pakistan
CGPA 3.00/4.00

Studies focused on the simulation and fabrication of reconfigurable planar monopole antenna for wireless communication using the CST studio suite simulation tool and fabricated on FR4 substrate.

EXPERIENCE

Doctoral Researcher Oct. 2019 – Present
Centre for Nanosciences and Nanotechnologies (C2N)
University of Paris Saclay Palaiseau France

- Developing a monolithic isolated gate driver circuit
- Conducted research and publishing research papers
- Presenting results to the scientific community at seminar
- Guiding Master's intern Student
- Performed miscellaneous duties/tasks as assigned

Research Assistant Sept. 2017 – Aug. 2019
Pusan National University, Busan, South Korea

- Designing PCB prototype for gate driver and inverter
- Worked on developing a controller for wind turbine.
- Conducted research and publishing research papers
- Participation in group meetings and company visits.
- Performed miscellaneous duties/tasks as assigned

Telecom Internship July. 2015 – Sep. 2015
National Telecommunication Corporation, Peshawar, Pakistan

- Understanding telecommunication infrastructure.
- Visiting transmission, distribution sites.
- Attending seminars and technical departmental meetings.

THESIS

Isolated Gate Driver IC (PhD)

I worked on designing a monolithic isolated gate driver circuit to control AC switches that ensure optimal energy supply to the ultrasonic transducer used in High-Intensity Focused Ultrasound (HIFU) based cancer therapy. I employed capacitive coupling as a signal-isolated transmission method. The design circuit is miniaturized, MRI-compatible, and complies with all IC specifications. The circuit is designed using AMS 0.35 μm CMOS technology in cadence. Research findings are published in well-reputed *international journals* and *IEEE conferences*.

Control Scheme for Grid integration of Doubly Fed Induction Generator based Wind Turbine under Unbalanced Grid Faults (MS)

I worked on the grid integration of the Doubly Fed Induction Generator-based Wind turbine. I proposed a controller design to stabilize DC-link Voltage during unbalanced Grid faults. My work has been published in *MDPI Energies, Electronics,* and *IEEE conferences*.

Monopole Antenna Design for Wireless Communication Application (BSc)

I worked on a simulation and fabrication of a reconfigurable monopole antenna. The designed antenna is low profile, small, and low weight, which can be used in smart electronic devices like tablets, laptops, and smartphones. The antenna simulation is carried out using CST Microwave Studio. This work has been published in the Local conference *Proceeding of the Pakistan Academy of Sciences.*

PUBLICATIONS

Total Citations = 342

Journal Submitted

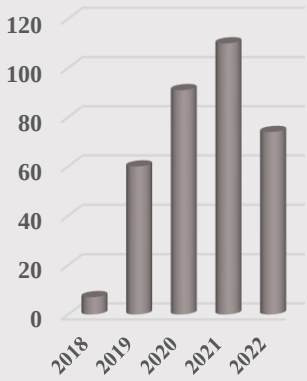
1. **Imran Khan**, M. Zhang, N. Llaser," Analysis and Design of an isolated information transmission system for AC switch used in Ultrasound transducer: HIFU based cancer therapy," **Submitted.**

Published/Accepted

Total Impact Factor = 64

1. X. Wang, **Imran Khan**, M. Zhang, N. Llaser "Optimized Design of a Driver Circuit for an Ultrasound Transducer for Medical Applications" *International Information and Engineering Technology Association (IIETA), 2020.* Link
2. **Imran Khan**, K. Zeb, W. Uddin, S. Islam, M. Ishfaq, S. Hussain, H. J. Kim "Dynamic Modeling and Robust Controllers Design for Doubly Fed Induction Generator-Based Wind Turbines under Unbalanced Grid Fault Conditions" *Energies 2019 12(3), 454* ***(IF:3.252)*** link
3. K. Zeb, **Imran Khan**, W. Uddin, M. A. Khan, P. S. kumar, T. D. C. Busarello, I. Ahmad, H. J. kim "A Review on recent advances and future trends of tranformerless inverter structures for single-phase grid-connected photovoltaic systems" *Energies 2018, 11(8),1968* ***(IF:3.252)*** Link
4. K Zeb, S. Islam, **Imran Khan**, W. Uddin, M. Ishfaq, T.D.C Busarello, H.J. Kim "Faults and Fault ride through strategies for Grid-Connected Photovoltaic system: A comprehensive review" Renewable and Sustainable Energy Review ***(IF:16.799)*** Link
5. K Zeb, S. Islam, **Imran Khan**, W. Uddin, T. D. C. Busarello, H. J. Kim "Design of High-Performance and Multi-Functional Control for Transformerless Single Phase Smart Inverter for Grid-Connected PV System" *Journal of Modern Power System and Clean Energy, 1-9, 2020* ***(IF:4.469)*** Link
6. W. Uddin, N. Zeb, K. Zeb, **Imran Khan**, S. Islam, A. Tanoli, A. Haider, H. J. Kim "A neural network-based model reference control architecture for oscillation damping in the interconnected power system" Energies *2019 12(19), 3653* ***(IF: 3.252).*** Link
7. K. Zeb, S. Islam, W. Uddin, **Imran Khan**, M. Ishfaq, T. D. C. Busarello, I. Ahmad, H. J. Kim **"**Design of Fuzzy-PI and Fuzzy-Sliding Mode Controllers for Single-Phase Two-Stages Grid-Connected Transformer less Photovoltaic Inverter" *Electronics 2019, 8(5), 520* ***(IF:2.69)*** Link
8. S. Islam, K. Zeb, W. Uddin, **Imran Khan**, M. Ishfaq, A. Hussain, T. D. C. Busarello, H. J. Kim "Design of Robust Fuzzy Logic Controller Based on the Levenberg Marquardt Algorithm and Fault Ride Trough Strategies for a Grid-Connected PV System" *Electronics 2019, 8(4), 429* ***(IF:2.69)*** Link
9. M. Ishfaq, W. Uddin, K. Zeb, **Imran Khan**, S. Islam, M. A. Khan, H. J. Kim "A New Adaptive Approach to Control Circulating and Output Current of Modular Multilevel Converter" *Energies 2019 12(6), 1118* ***(IF:3.252)*** Link
10. S. Hussain, M. U. Ali, S. H. Nengroo, **Imran khan**, M. Ishfaq, H. J. Kim "Semiactive Hybrid Energy Management System: A Solution for Electric Wheelchairs" *Electronics, 9, 2019* ***(IF:2.690)*** Link

Google Scholar Statistics



	All	Since 2017
Citations	342	342
h-index	11	11
i10-index	12	12

PUBLICATION SUMMARY

Journals	15
Intl. Conferences	15
Submitted Journals	1

11. W. Uddin, K. Zeb, A. Haider, B. Khan, S. Islam, M. Ishfaq, **Imran Khan**, M. A. Khan, H. J. Kim "Current and future prospects of small hydropower in Pakistan: A survey" *Energy Strategy Reviews 2019, volume 24 pp 166-177* ***(IF:10.01)*** Link
12. W. Uddin, K. Zeb, M. A. Khan, **Imran Khan**, H. J. Kim, G. S. Park, C. W. Lee "Control of Output and Circulating Current of Modular Multilevel Converter Using a Sliding Mode Approach" *Energies 2019, 12(21), 4084* ***(IF:3.252)*** Link
13. S. Islam, K. Zeb, W. Uddin, **Imran Khan**, M. Ishfaq, T. D. C. Busarello, H. J. Kim "Design of a Proportional Resonant Controller with Resonant Harmonic Compensator and Fault Ride Trough Strategies for a Grid-Connected Photovoltaic System" *Electronics 2018, 7(12), 451* ***(IF:2.69)*** Link
14. W. Uddin, K. Zeb, M. Ishfaq, **Imran Khan**, H. J. Kim "Control of Internal Dynamics of Grid-Connected Modular Multilevel Converter Using an Integral Backstepping Controller" *Electronics 2019, 8(4), 456* ***(IF:2.69)*** Link
15. M. A. Khan, K. Zeb, P. S. Kumar, M. U. Ali, W. Uddin, S. Hussain, M. Ishfaq, **Imran Khan**, H G. Cho, H. J. Kim "A novel supercapacitor/lithium-ion hybrid energy system with a fuzzy logic-controlled fast charging and intelligent energy management system" *Electronics 2018, 7(5), 63,* ***(IF: 2.69)*** Link

Conference

Published/Accepted

1. **Imran Khan**, M. Zhang, N. Llaser "Analyse and Design of a Capacitive-Isolation-Based Information Transmission System" *International Conference on Analog VLSI Circuits 2021* Link
2. **Imran Khan**, M. Zhang, N. Llaser "Signal transmission for an isolated gate driver using capacitive coupling technique" *19th IEEE International New Circuits and Systems Conference (NEWCAS) 2021*Link
3. **Imran Khan**, K. Zeb, A. Mahmood, W. Uddin, M. A. Khan, S Islam, H. J. Kim "Healthcare monitoring system and transforming Monitored data into real-time clinical feedback based on IoT using Raspberry Pi" *IEEE International Conf. on Computing, Mathematics and Engineering Technologies 2019* Link
4. **Imran Khan**, K. Zeb, W. Uddin, M. Ishfaq, Z. Ullah, H. J. Kim "Robust Control Design for DFIG based Wind Turbine under voltage sags" *IEEE International Conf. on Computing, Mathematics and Engineering Technologies 2020.* Link
5. K. Zeb, W. Uddin, S. Islam, **Imran Khan**, M. Ishfaq, Z. Ullah, A. Haider, H. J. Kim "Adaptive Fuzzy Logic Controller for Indirect Field Oriented Controlled Induction Motor" *IEEE International Conf. on Computing, Mathematics and Engineering Technologies 2019.* Link
6. K. Zeb, S. Islam, W. Uddin, **Imran Khan**, M. A. Khan, S. Ali, T. D. C. Busarello, H. J. Kim "An overview of transformerless inverter for grid-connected photovoltaic system" *IEEE International Conf. on Computing, Electronic and Electrical Engineering 2018* Link
7. K. Zeb, S. Islam, W. Uddin, **Imran Khan**, M. Ishfaq, Z. Ullah, T. D. C. Busarello, H. J. Kim "Design of Adaptive Sliding Mode Controller for Single Phase grid-tied PV System" *IEEE International Conf. on Emerging Technologies 2019.* Link
8. S. Islam, K. Zeb, W. Uddin, **Imran Khan**, M. Ishfaq, Z. Ullah, H. J. Kim "Design and Investigation of FRT Schemes for three-phase Grid-Tied PV System" *IEEE International Conf. on Emerging Technologies 2019.* Link
9. M. Ishfaq, W. Uddin, K. Zeb, **Imran Khan**, S. Islam, H. J. Kim "Output Current Control of Modular Multilevel Converter Using Backstepping Controller" *IEEE International Conf. on Emerging Technologies 2019.* Link
10. S. Islam, K. Zeb, W. Uddin, **Imran Khan**, M. A. Khan, Z. Ullah, H. J. Kim "A Novel Design of FRT Strategy and Proportional Resonant Controller for Three Phase grid-connected PV system" *IEEE International Conference on Power Generation Systems and Renewable Energy Technologies 2018* Link
11. W. Uddin, S. Hussain, K. Zeb, I. U. Khalil, Z. Ullah, M. A. Dildar, M. A. Khan, M. Ishfaq, **Imran Khan**, H. J. Kim "Effect of Arm Inductor on Harmonic Reduction in Modular Multilevel Converter" *IEEE International Conf. on Power Generation Systems and Renewable Energy Technologies 2018* Link
12. M. Ishfaq, W. Uddin, K. Zeb, S. Islam, S. Hussain, **Imran Khan**, H. J. Kim "Active and Reactive Power Control of Modular Multilevel Converter Using Sliding Mode Controller" *IEEE International Conf. on Computing, Mathematics and Engineering Technologies 2019.* Link
13. W. A. Khan, M. Sohail, M. Ishfaq, **Imran Khan** "Dual-band inverted F monopole antenna with truncated ground plane" *2018 International Conference on Computing, Mathematics and Engineering Technologies (iCoMET), 2018.* Link
14. K Ullah, A. M. Dubois, D. Diallo, W. Uddin, M. Nasir, **Imran Khan** "Reuse Legacy to Repower the Microgrids–An Affordable Solution for Test and Restoration of Repurposed Lead Acid Batteries" *2020 2nd International Conference on Smart Power & Internet Energy Systems Thailand* Link
15. W. Uddin, K. Zeb, M. Ishfaq, M. A. khan, **Imran khan**, H. J. Kim "Super Twisting sliding mode control for inner current suppression of Modular Multilevel Converter" *IEEE International Conf. on Computing, Mathematics and Engineering Technologies 2020* Link

HONORS & ACHIEVEMENTS

- Awarded **Merit Scholarship** by University of Engineering and Technology Peshawar Pakistan for Bachelor's degree program *(2012-16)*.
- Awarded Brain Korea 21 Plus **Korean Govt. Scholarship for Master's degree program** *(2017-19)*.
- Awarded **Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation (MESRI) France funding** for PhD degree *(2019-23)*.
- **Best Paper** in 4th International Conference on Renewable Energy & Conservation (ICREC-2019) Held in Hiroshima, Japan, 8-10 June 2019 (http://www.icrec.org/2019.html).
- Received Laptop from Govt. of Pakistan for Talented Students.

PERSONAL ABILITIES

- Self-driven, reliable, and devoted to studies and research
- Critical and an independent thinker
- A proactive and flexible attitude can work as a team leader as well as a team player
- Ability to deliver the task on short deadlines
- Ability to adjust and work in the environment and learn quickly
- Good at finding information and doing research as needed
- Good Interpersonal & Communication Skills acquired through various presentations
- Easy Adaptive to a multicultural environment

REFERENCE

- **Dr. Ming Zhang** (Ph.D. Supervisor)
  Associate Professor | University of Paris Saclay
  C2N, Palaiseau, France
  ming.zhang@universite-paris-saclay.fr

- **Dr. Kamran Zeb** (Master Co-Supervisor)
  Assistant Professor | School of Electrical Engineering & Computer Science
  National University of Science Technology, H-12, Islamabad Pakistan
  kamran.zeb@pusan.ac.kr

- **Dr. Waqar Uddin**
  Assistant Professor | Department of Electrical Engineering
  National University of Technology, I-12, Islamabad Pakistan
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- **Dr. Hee Je Kim** (Master Co-Supervisor)
  Professor |Department of Electrical and computer Engineering
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