

Ronak Ali (He/Him/His)

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Education

University of Kentucky, Lexington, Kentucky, United States of America

PhD Candidate Electrical Engineering (2022 to date)

CGPA 3.5/4.0



Bahria University Karachi Campus, Pakistan

Master of Science in Electrical Engineering (2017-2019)

CGPA: 3.7/4.0



Sukkur IBA University, Pakistan

Bachelor's in Electrical Engineering (2011-2015)

CGPA: 3.47/4.0



Research and Teaching Experience

BBSUTSD Khairpur Mirs, Sindh, Pakistan (Study Leave)

Sept 2020 – to date

Assistant Professor, Electronics Engineering Technology

- Taught theory classes of undergraduate courses, i.e. Data and Mobile Communications, Wireless Networks, and Field Programmable Gate Array (FPPGA)
- Conducted laboratory experiments of undergraduate courses, i.e. Data and Mobile Communications, Wireless Networks, and Field Programmable Gate Array (FPPGA)
- Worked on proformas and documentation for accreditation our Electronics Engineering Technology Department from National Technology Council (NTC) Pakistan

Nazeer Hussain University, Karachi, Pakistan

Jan 2020 – Sept 2020

Lecturer, Electrical Engineering

- Taught theory classes of undergraduate courses, i.e. Signals and Systems, Digital Signal Processing, and Mobile and Wireless Communications
- Managed Signals and Systems Lab, NHU in the capacity of in charge
- Worked on proformas and documentation for accreditation our Electrical Engineering Department from Pakistan Engineering Council (PEC)

Nazeer Hussain University, Karachi, Pakistan

Sept 2017 – Dec 2019

Laboratory Engineer, Electrical Engineering

- Conducted laboratory experiments of undergraduate courses, i.e. Signals and Systems, Digital Signal Processing, and Mobile and Wireless Communications
- Managed Electronics Laboratory in the capacity of in charge
- Worked on proformas and documentation for accreditation our Electrical Engineering Department from Pakistan Engineering Council (PEC)

GoTech Enterprise, Sukkur/Khairpur

Mar 2016 – Sept 2017

Trainer of Electrical Research

- *Monitoring Research Based Tasks*
- *Working on growth of projects*

Sukkur IBA University, Sukkur, Sindh, Pakistan

Aug 2015 – Feb 2016

Instructor, PMYSDP

- *Taught theory classes of Electrician Course*
- *Conducted laboratory experiments of Electrician Course*

Pakistan Telecommunication Limited, Sukkur, Sindh, Pakistan

May 2015 – July 2015

Intern, Integrated Digital Services and Equipment

- *Received hands-on experience in telecommunications, information technology, customer services, and marketing, Fiber Optics, VoIP, Generation Technologies, LTE, QoS Management and Network Security.*

Zhong Xing Telecommunication Equipment, Sukkur, Sindh, Pakistan

May 2014 – July 2014

Intern, Transmission and Networking

- *Received hands-on experience in MPLS Networking, SD-WAN, Cloud Services, IoT Integration, RF Engineering and QoS Management*

Skillset

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| ◆ Scanning Electron Microscope | ◆ Chemical Vapor Deposition | ◆ Plasma Enhanced Chemical Vapor Deposition |
| ◆ MOS Fabrication | ◆ Physical Vapor Deposition | ◆ Sputtering |
| ◆ Atomic Layer Deposition | ◆ Etching | ◆ Low Humidity Sensors |
| ◆ Low Pressure CVD | ◆ Nano-scales materials growth | ◆ Nanotechnology |
| ◆ Photolithography | ◆ Nanostructures | ◆ Spectroscopic Ellipsometer |
| ◆ Device Fabrication | ◆ Multisim, Protius, & WorkBench | ◆ Profilometer |
| ◆ Cleanroom's management | | ◆ CAD, C, C++ & JAVA |
| ◆ Fabrication Equipment | | ◆ Arduino & MATLAB |
| ◆ Anodic Spark Deposition | | |
| ◆ Nano-scale device fabrication | | |
| ◆ JavaScript & HTML | | |

Paper and Poster Presentations (Conferences/Summits)

1. **Ronak Ali**, Aaron Swartz, Riasad Azim Badhan, Reza Ilka, Yiju Wang, Jiangbiao He, Zhi Chen, Ning Ren, Z George Zhang, Gefei Wu, and Roger England, "Porous Dielectric Structure and Response Speed of Moisture Sensors", 245th ECS (Electrochemical Society) Meeting, May 26-30, 2024, ECS Transactions, Volume 113, Number 2, **San Francisco, California, the United States of America**, DOI 10.1149/11302.0003ecst.
2. **Zhi David Chen**, and Ronak Ali, "High-Performance Humidity Sensor Capable for Monitoring Low-Moisture Levels in Energy Industries", 245th ECS (Electrochemical Society) Meeting, May 26-30, 2024, **San Francisco, California, the United States of America**.
3. **Ronak Ali** and Zhi David Chen, "Varying Current Effect on Small Pores Inside Large Pores by Anodic Spark Deposition", 8th Nano Today Conference, April 22-25, 2023, Paradise Point, **San Diego, California, the United States of America**.

4. **Ronak Ali** and Zhi David Chen, “Investigation of Sensing Mechanism of Low Humidity Sensors”, 8th Nano Today Conference, April 22-25, 2023, Paradise Point, **San Diego, California, the United States of America**.
5. **Ronak Ali**, Zhi David Chen, “Coverage of Small Pores with Sputtered Aluminum to Analyze Response Speed of Humidity Sensors”, NNCI Nano and Additive Manufacturing Summit July 25-26, 2023, held at University of Louisville, **Louisville, Kentucky, the United States of America**.
6. Reza Ilka, Yiju Wang, JiangBiao He, **Ronak Ali**, Aaron Swartz, David Chen, Ning Ren, Z. George Zhang, Gefei Wu and Roger England, “Multi-Physics Modeling of Power Electronic Converters with Liquid Immersion Cooling”, October 2023, DOI: 10.1109/ECCE53617.2023.10362241, 2023 IEEE Energy Conversion Congress and Exposition (ECCE), **Nashville Tennessee, the United States of America**.
7. **Ronak Ali**, Shujaat Ali, Tariq Pirzada, Syed Hadi Hussain Shah, Madad Shah, and Saeed Ahmed Khan “Best State Estimate for the Phase Angles of Busbars in Power Systems via Circuit Modeled with DC Load Flow”, 13th IEEE Integrated STEM Education Conference (ISEC), Johns Hopkins University (Applied Physics Laboratory), **Laurel, Maryland, the United States of America**, March 11, 2023.
8. **Ronak Ali** Baladi, Khawaja Haider Ali, Tayyaba Khan Riaz, and Madad Shah, “Multi-technologies of PV Cells with Comparative Analysis, Improved Reliability, Performance and Cost Reduction in Solar Energy System”, National Conference on Intelligent Manufacturing and Sustainable Energy Systems (IMSES 2015) at MUET SZAB Campus, Khairpur Mirs on October 6-7, 2015.
9. **Ronak Ali** Baladi and Madad Shah, “Regulating Solar LED Array with Vehicle Detection to Turn Streetlight On or off To Save Energy”, ICEEST Conference 2017 held at IQRA University Karachi on August 25-26, 2017.
10. **Ronak Ali** Baladi and Madad Shah, “Solar Powered Irrigation System for Agriculture based on Moisture Content in the Field and Saving Energy and Water with Optimum Designing”, ICEEST 2017 Conference held at IQRA University on 25-26th August 2017.
11. Shujaat Ali, Ubaidullah, Saad Ali and **Ronak Ali**, “Energy Saving through lighting control with Building Management System and Motion Sensor”, 3rd International Conference on Emerging Trends in Engineering, Management & Sciences ICETEMS-2018, at City University of Science & Information Technology Peshawar, Pakistan.
12. Tariq M Pirzada, **Ronak Ali** and Shujaat Ali, “Wireless Based Vibration Detection Scheme”, International Conference the First South Asia Conference on Earthquake Engineering (SACEE'19) was held at Ramada Plaza Karachi on February 21-22, 2019, organized by South Asia Earthquake Network (SHAKE) and supported by HEC, National Disaster Management Authority Pakistan and NED University.




Publications

1. **Ronak Ali**, Ahmed J Obaid, and Haroon Rasheed, “Performance Analysis of Photovoltaic Cells at Varying Environmental Parameters and Solar Cell Precise Algorithm”, IOP journal of Physics: conference series (JPCS), iopscience.iop.org/article/10.1088/1742-6596/1530/1/012156 (Online ISSN: 1742-6596) (Print ISSN: 1742-6588) May 2020.
2. **Ronak Ali** Baladi, Madad Shah, and Khawaja Hyder Ali, “Raised Soundness and Production of Single Axis Tracker with Fixed Mount and Cost Depletion with Relative Investigation of PV Technologies”,

3. **Ronak Ali** Baladi and Madad Shah, “Regulating Solar LED Array with Vehicle Detection to Turn Streetlight On or off To Save Energy”, Asian Journal of Engineering, Sciences & Technology, Vol.8, Issue 1, March 2018.
4. **Ronak Ali** Baladi and Madad Shah, “Solar Powered Irrigation System for Agriculture based on Moisture Content in the Field and Saving Energy and Water with Optimum Designing” Asian Journal of Engineering, Sciences & Technology, Vol.8, Issue 1, March 2018.
5. **Ronak Ali** Baladi and Madad Shah, “Using Principal Component Analysis and Gaussian Mixture Regression Techniques with Automation in Construction”, International Journal of Computer Science and Emerging Technologies (IJCET), Vol 2, December 2018.
6. **Ronak Ali** Baladi, “Wireless Sensor Based Water Quality Management Using Solar Energy”, International Journal of Computer Science and Emerging Technologies (IJCET), Vol 2, December 2018.

Ohio-Southwest Alliance on Semiconductors and Integrated Scalable-Manufacturing (OASiS) Program

Enrolled and Passed OASiS program designed by Intel and different universities

- ❖ University of Cincinnati (Contents/Fabrication Part)
Semiconductor Processing Environment (Cleanroom) and Safety Protocols
 - Instructors: Dr. Jonathan Nickels, Jeff Simkins, Dr. Rashmi Jha, Dr. Marc Cahay, and Ron Flenniken
 - Advent of semiconductor industry, Clean Room Safety and Protocol, Basic process and equipment in clean room environment, Wafer Cleaning, Oxidation (Thermal, Low Temperature Oxidation, Plasma Enhanced Chemical Vapor Deposition, Low Pressure Chemical Vapor Deposition, Atomic Layer Deposition), Nitridation (Thermal, Plasma Enhanced Chemical Vapor Deposition, Low Pressure Chemical Vapor Deposition, Atomic Layer Deposition), Photolithography, Physical Vapor Deposition (PVD) Deposition of Metals and Dielectrics, Etching, Doping, Chemical Mechanical Polishing, Metrology, Chemistry Principles, Roles of chemicals in semiconductor fabrication, Chemical hazards, Chemical waste and storage, CMOS transistor technology, fabrication environment, process equipment with hands on experience in cleanroom, and semiconductor processing and safety measures.
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- ❖ University of Dayton, USA (Cleanroom/Contents Part)
Integrated Circuits (IC) Fabrication Processes and Metrology
 - Instructors: Dr. Andrew Sarangan, and Dr. Guru Subramanyam
 - Overview of CMOS process flow, Gate Dielectrics, Mask design, patterning and lithography, Plasma etching, Doping in Semiconductors, Thin Film Metallization, and Metrology and Packaging.
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- University of Dayton**
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- ❖ Wright State University, USA (Contents/Fabrication)
Semiconductor Manufacturing and Equipment Safety
 - Instructors: Dr. Ahsan Mian, Dr. Deniel Sim, and Dr. Subhashini Ganapathy
 - Wafer handling, wafer cleaning, dehydration, photoresist coating, sot bake, exposure, microscope inspection i.e. photolithography, equipment safety and different roles in semiconductors fabrication facility, introduction to Semiconductor Manufacturing Process - describe basics of semiconductor manufacturing concepts, processes, introduction to vacuum
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- WRIGHT STATE UNIVERSITY**

control systems, tools used in semiconductor manufacturing, mechatronics, understanding the role of a Semiconductor Technicians and Engineers, introduction to safety protocols - equipment use, machines, and tools.

- ❖ Miami University, USA
Professional Skills for Career in Semiconductor Fabrication
- Content: Dr. Kumar Singh, Professor, Miami University
- Careers in Semiconductor Industries and Desired Skillset, Strategies for Career Success, Time Management, Problem Solving, and Communications Skills



Trainings Conducted

- ◆ Conducted series of seminars on “How to attempt paper” for Electronics/Telecommunication/Computer system/Power Engineering students at Sukkur IBA University (November 2014).
- ◆ Training on “Troubleshooting of Circuit Based projects” was given to EE Electronics’ students at Sukkur IBA University, Pakistan (October 2014).
- ◆ Training on “Designing complex projects on software” was given to Computer Science/Software Engineering students at Sukkur IBA University, Pakistan (October 2014).
- ◆ Training on “Circuit Simulation on Multisim Software” was given to Energy system engineering students at Sukkur IBA University, Pakistan (September 2014).
- ◆ Training was given to first year electrical engineering students on “Analyzing voltage, current and power on software” at Sukkur IBA University, Pakistan (September 2014).
- ◆ Conducted series of seminars for Electrical Engineering students on topic of “Proactive approaches for studies” at Sukkur IBA University, Pakistan in September 2014.

Awards and Honors

- ◆ **Awarded Fulbright Scholarship** for doctoral studies at the University of Kentucky, Lexington, KY, USA (2022-2026).
- ◆ Being part of Robot team of University of Kentucky, USA, won Third Position in Robotics Hardware Competition at IEEE SoutheastCon at Westin Peachtree Plaza, Atlanta, Georgia, USA March 20-24, 2024.
- ◆ Awarded Sindh Endowment Scholarship for bachelor’s studies at the Sukkur IBA University, Sukkur, Sindh, Pakistan (2014-2015).
- ◆ Awarded Professional Development Grant of \$250 for 8th Nano Today Conference (April 22-25, 2023).
- ◆ Awarded Professional Development Grant of \$250 for 13th IEEE Integrated STEM Education Conference, Laurel, Maryland, the United States of America (March 11, 2023).
- ◆ Achieved **First Position** in the Master of Science in Electrical Engineering Class at Bahria University Karachi Campus (2019).
- ◆ Achieved **First Place** in bachelor’s studies of Electrical Engineering at Sukkur IBA University (2015).
- ◆ Achieved **First Position** at workshop “Corruption Free Future Generation” organized by Transparency International Pakistan at Regent Plaza Hotel Karachi in March 2013.

Events Organized

- ◆ As a Chair student branch, organized IEEEExtreme 8.0 on 18 October 2014 00:00:00 UTC, at Sukkur IBA University, Pakistan.
- IEEEExtreme is a global challenge in which teams of IEEE Student members, supported by an IEEE Student Branch, advised and proctored by an IEEE member, compete in a 24-hour time span against each other to solve a set of programming problems.
- ◆ As a Chair of IEEE Student Branch, organized IEEE Day on 7th October 2014 at Sukkur IBA University, Pakistan.
- ◆ As a Coordinator Engineering Society, organized Career Workshop for THP, Regular foundation and summer program students at Sukkur IBA University, Pakistan (2014).

- ◆ As a Coordinator Engineering Society, organized Arduino Workshop for IT Students at Sukkur IBA University, Pakistan during undergraduate studies (2014).
- ◆ As a Coordinator Engineering Society, organized Family festival in Spring 2013 Semester at Sukkur IBA University, Pakistan.

Professional Affiliations/Memberships

Member, IEEE	2014, 2023-to date
Member, University of Kentucky, Beta Upsilon Chapter (IEEE-HKN)	Fall 2023 to Present
Member, Electrochemical Society	Sept 2023 to date
Member, American Chemical Society	Jul 2023 to date
IEEE Nanotechnology Council	For 2 Years
IEEE Sensors Council	For 2 Years
IEEE Biometrics Council	For 2 Years
IEEE Council on Electronic Design Automation	For 2 Years
IEEE Council on RFID	For 2 Years
IEEE Systems Council	For 2 Years
Member, IEEE Electron Devices Society	For 1 Year
Member, IEEE Power & Energy Society	For 1 Year
Member, IEEE Microwave Theory and Technology Society	For 1 Year
Member, IEEE Young Professionals	For 1 Year
Member, IEEE Communications Society	For 1 Year
Member, IEEE Signal Processing Society	For 1 Year
IEEE Council on Superconductivity	For 1 Year
Global Earth Observing System of Systems Community, IEEE	For 1 Year
Smart Cities Community, IEEE	For 5 Years
Smart Grid Community, IEEE	For 5 Years
Transportation Electrification Community, IEEE	For 5 Years
Cloud Computing, IEEE Computer Society Technical Community on	
Internet of Things Community, IEEE	For 10 Years
Life Sciences Community, IEEE	For 10 Years
Software Defined Networks Community, IEEE	For 10 Years
Sustainable ICT Community, IEEE	For 10 Years

Campus Involvement

Vice President IEEE-HKN Chapter, University of Kentucky	2024-2025
Graduate Chair IEEE Student Branch, University of Kentucky	2024-2025
Graduate Senator Student Government Association, University of Kentucky	2023-2024
Chair Student Activities Board, University of Kentucky	Aug 2023 to date
Chairman IEEE Student Branch, Sukkur IBA University	Feb-Dec 2014
Coordinator Engineering Society, Sukkur IBA University	Feb-Dec 2014
Member, Material Advantage, University of Kentucky	Nov 2022 to date
Member, Team SpaceLex, Rocketry and Propulsion, University of Kentucky	Oct 2022 to date
Member, Solar Car Team, University of Kentucky	Sept 2022 to date
Member, Student Alumni Association, University of Kentucky	Sept 2022 to date
Member, Science Olympians, University of Kentucky	Sept 2022 to date
Member, Team Wildcat, University of Kentucky	Sept 2022 to date
Member, Underground Perspective, University of Kentucky	Sept 2022 to date
Member, American Institute of Aeronautics and Astronautics, U of Kentucky	Aug 2022 to date
Member, Engineers Without Borders, University of Kentucky	Aug 2022 to date
Member, Energy Club, University of Kentucky	Aug 2022 to date
Member, Alpha Lambda Delta, University of Kentucky	Aug 2022 to date

Member, International Student Council, University of Kentucky	Aug 2022 to date
Member, Kesem (Member/Volunteer for cancer team), University of Kentucky	Aug 2022 to date
Member, Muslim Student Association, University of Kentucky	Aug 2022 to date
Member, Model United Nations, University of Kentucky	Aug 2022 to date
Member, Zine Club, University of Kentucky	Aug 2022 to date
Member, Student Parent Organization, University of Kentucky	Aug 2022 to date