HASHIM RAZA KHAN

EXPERIENCE

2002- to date **NED University of Engg. & Tech., Karachi, Pakistan**

Assistant Professor (2006- present)

- Taught courses of Basic Electronics, Integrated Circuits and VLSI Design at undergraduate and EDA Tools, Digital VLSI Design, Mechatronics, Analog VLSI Design, High Speed Semiconductor & Devices at graduate level.
- Technical point of contact for multi-vendor RFIC EDA tool chain comprising of Cadence, AWR Microwave Office, and Sonnet tools. Also responsible for upgrade and maintenance of all EDA tools.
- Technical point of contact for all semiconductor process technologies available at NED University. This includes IBM (USA), TSMC (Taiwan), SilTerra (Malaysia), Dongbu HiTek (South Korea) and LFoundry (Germany). These technologies are provided by Multi Project Wafer (MPW) run service providers MOSIS (USA), SilTerra (Malaysia) and WaferCat (Saudi Arabia).
- Team member responsible for establishing Electronics Design Centre including design of facilities, equipment selection and procurement, etc.
- Lab Coordinator of all laboratories of Electronic Engineering department. Responsible for managing the upkeep, maintenance, planning and upgrading of laboratories
- Lab In-charge of RF Lab at Electronics Design Centre.
- Supervisor of one PhD scholar and three Master thesis projects.
- Project advisor for undergraduate projects related to RFIC design, Telecommunications and embedded systems.
- Organized several seminars on Automation, Signal Processing, VLSI, Entrepreneurship, and career counselling by inviting speakers from academia and industry.
- Member of several committees at NED University for equipment purchase, software renewal, curriculum revision and evaluation of institutes affiliated with NED University.
- Focal person from NED University for Pakistan National Student Satellite Programme (PNSSP) launched and sponsored by SUPARCO.

Senior Manager Instrumentation Centre (Additional Charge) September 2014 - present)

- Successfully initiated and leading the effort to open instrumentation centre services for the industry since November 2014.
- The entire venture is running on bootstrap mode without any additional investment from the University. The instrumentation centre is providing calibration, training, repair, product design and miscellaneous technical services.

- Clients include FFBL, Telenor Pakistan, K-Electric, Ziafco, Dawlance, Otsuka Pakistan Ltd., HBL, Zor Chemicals, Saltek, Nestle Pakistan, Maritime Technologies Complex, Comsats Institute of Information Technology Islamabad, PAFKIET, UIT, etc.
- Projects:
  - Otsuka Pharmaceuticals: High Voltage Leak Detection Machine design for saline bottles
  - K Electric: Test jig design and fabrication for thermocouple cards of DCS at BQPS I power plant
  - HBL: Electrical, lighting, surveillance and fire protection systems design Mega warehouse, SITE, Karachi
- Products:
  - Instrux: Cloud based energy monitoring system with highly customizable business intelligence, compatible with most energy analysers
  - ICCA: CNC machines for fabrication of electronic circuit boards and processing on other soft materials.

Lecturer (2002-2006)

- Taught courses of Basic Electronics and Integrated Circuits.
- Laboratory In-charge of Power Electronics Laboratory.
- Testing and commissioning of equipment in Industrial Electronics and Power Electronics Laboratories.

Oct 05-May 06 **Infineon Technologies, Duisburg, Germany**

Master Thesis Student

- Worked as Master Thesis student on Design of RF Synthesizer in 65nm process technology for GSM SoC.
- Worked as student worker on the design of band gap reference voltage for GSM SoC in 65nm process technology.

Mar 05- Sep 05 **Agilent Technologies, Böblingen, Germany**

Internee

- Worked as intern with HSM R&D team. Tasks included designing a 320Mbps signal generator capable of supplying clock, PRBS and frequency sweep functionality for the FCal robot's calibration board. Other responsibilities include providing assistance for improvement in FCal measurement and processing the results.

2004-2005 **Aachen University of Technology (RWTH), Aachen, Germany**

Student Worker

- Worked as Student Worker at the Institute of Analog Circuits (IAS). Tasks included getting familiarized with Mentor Graphics ModelSim and implementing

frequency divider, FIR filters in VHDL.

- Worked as Student Worker at the Institute of Communication Systems and Data Processing (IND) in the area of background noise suppression in speech signals.
- Worked as student worker at Comnets department in the area of adhoc networks for wireless communication

EDUCATION

2008-2014 **NED University of Engg. & Tech., Karachi, Pakistan**
PhD in Electronic Engineering collaborating with Linköping University, Sweden. PhD topic is "Flexible and Adaptive wideband switching power amplifiers for wireless transmitters."

2003-2006 **Aachen University of Technology (RWTH), Aachen, Germany**
M. Sc in Communications Engineering with grade 1.8 on German Scale (1.0 is best and 4.0 is worst).

1998-2002 **NED University of Engg. & Tech., Karachi, Pakistan**
BE in Electrical Engineering, remaining among the top 10 students of the Department of Electrical Engineering throughout the four years of study. Aggregate Percentage: 82% (A-1)

COURSES & TRAINING

Trainings Conducted

2016 **Introduction to Arduino, NED University**
A 16 hours entry level course for students and professionals conducted at Electronic Engineering department

2016 **Introduction to Printed Circuit Board Design**
A 16 hours entry level course for students and professionals conducted at Electronic Engineering department

2015 **Calibration principles & Techniques, Nestle Waters Factory, Port Qasim**
Two days hands-on corporate training for technical staff at Nestle Water factory

2015 **Refresher course in instrumentation and measurement technique for faculty, NED University, Pakistan**
Two days refresher course for the faculty of electronic engineering department

2014 **Practical aspects of Electronics, NED University, Pakistan**
Eight days winter school for undergraduate students to familiarize them with optimal use of instrument and best practices in electronic circuit design.

Courses & Trainings Attended

2018 **Certified Professional by SPPRA & NED University Procurement**

Attended five days training course on procurement procedure in public sector organizations, organized by Centre of Professional Education (CoPE)

2016 **Entrepreneurship Workshop by CED, IBA Karachi**

Attended two days workshop on Entrepreneurship by Centre for Entrepreneurial Development by IBA, Karachi

2015 **Satellite Design Workshop by SUPARCO, Lahore, Pakistan**

Attended three days workshop on student satellite design challenges and methodologies

2014 **Indigenous On-campus Training IOT programme, Karachi, Pakistan**

Attended five days training programme for various aspects of non academic departments in University organized by IBA, Karachi and sponsored by HEC.

2012 **ICT Business Plan Development & Global Sales Strategies for Pakistani Entrepreneurs, Islamabad, Pakistan**

Attended five days training workshop on entrepreneurial skill development by Kenneth P. Morse, Founding Editor MIT Enterprise Forum and Cambridge Advisors Network.

2011 **RF Analog IC Design, EPFL, Lausanne, Switzerland.**

Attended five days extensive course on RFIC Design by Mead Education S.A.

2009 **EDA Tools Training, Singapore**.

Attended two weeks training for Mentor Graphics IC and PCB design tools by Mentor Graphics Inc.

2006 **LabVIEW and Instrumentation Training, NED University, Karachi, Pakistan**

Attended ten days project based training of LabVIEW by Assoc. Prof. Uvais Qidwai, Qatar University, Qatar

SKILLS

- IC design, simulation and synthesis in Cadence Virtuoso, Mentor Graphics, Microwave Office and ADS.
- RF and digital PCB design in ADS, Eagle and OrCAD.
- EM simulations in Sonnet, Axiem and Momentum.
- Test and measurement of various blocks of RF front end for wireless communication systems.
- Programming in C, Verilog, VHDL
- Circuit simulation in LINMIC, OrCAD, SWCAD and variants.
- Simulation in MATLAB and NS-2
- Knowledge of Windows, Unix and Linux operating systems.
- Proficient in MS Office and LaTeX
- Fluent in English and Urdu, basic knowledge of German.

CONTACT INFORMATION

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RESEARCH GRANTS & FUNDING

2019-2021

- Co-Principal Investigator for Neuro-computation lab which is part of National Centre for Artificial Intelligence (NCAI) established by Planning Commission of Pakistan and HEC Pakistan as a cluster of six Pakistani Universities with a total funding of Rs. 1 billion.

2018-2020

- Principal Investigator for development project titled "Low Cost Assistive Robots for Differently Abled Children & General Use" funded by Trax Logic and HEC TDF amounting to Rs. 9 million approx.

2018-2020

- Co-Principal Investigator for HEC TDF funded 2 years project titled "Intelligent Energy Efficient Fans for Home and Commercial Users" amounting to Rs. 10.2 million approx.

2017-2019

- Co-Principal Investigator for HEC NRPU funded 2 years project titled "3D indoor modelling and classification for structured environments" amounting to Rs. 6 million approx.

2017

- Final Year Project grant by NED University Alumni Association at Southern California (NEDAASC) amounting to Rs. 65,000 approx. for the project "Edutainment robotic system for Autistic children."

2012-2014

- Co-Principal Investigator (later Principal investigator) for Research Project "Flexible, Reconfigurable and Power Adaptive Power Amplifiers for wireless Communication" funded by ICT R&D Fund. This three year project is the first project funded by ICT R&D Fund at a public sector University in Sind (Rs. 14 million approximately).

2012-2014

- HEC Travel Grants to present research papers at conferences in USA and Singapore..

2008-2012

- PhD funding from NED University Research Fund (Rs. 21 million).

PUBLICATIONS

1. A. Durrani, M. Khurram, H. R. Khan, "Smart Weather Alert System for Dwellers of Different Areas," 16th IEEE IBCAST, January 2019, Islamabad, Pakistan
2. A Shabbir, H. R. Khan, S. A. Ali, S. Rizvi , 'Design and Performance Analysis of Multi-tier Heterogeneous Network through Coverage, Throughput and Energy Efficiency' **Journal of Engineering, Technology & Applied Science Research** (In press)
3. A. Shabbir, H. R. Khan, and Syed Abbas Ali. "Outage analysis of two-tier heterogeneous cellular network with sleep strategies." In Circuits, System and Simulation (ICCSS), 2017 International Conference on, pp. 138-141. IEEE, 2017.
4. A. Shabbir, H. R. Khan, S. A. Ali, S. Rizvi, "A Stochastic Geometrical Approach for Performance Analysis of Heterogeneous Cellular Network," **International Journal of Computer Science & Information Security**, pp. 467-475, Vol. 14, No. 8, August 2016,
5. H. R. Khan, A. R. Qureshi, F. Zafar, Q. Wahab, "Design of a Broadband Current Mode Class-D Power Amplifier with Harmonic Suppression," **Journal of Analog Integrated Circuits and Signal Processing (Springer)**, July 2016.
6. I. Jaffri, U. A. Siddiqui, F. Hadi, H R. Khan, "Evaluation of SilTerra's 130nm CMOS Radio Frequency Integrated Circuit (RF IC) Technology for Power Amplifier," 1st International Electrical Engineering Congress, May 13-14, 2016, Karachi, **Pakistan**
7. H. Rana, S. Zehra, A. Sahar, S. Nazir, H. R. Khan, "Kinect Based Edutainment System For Autistic Children," 1st International Electrical Engineering Congress, May 13-14, 2016, Karachi, **Pakistan**
8. H. R. Khan, A. R. Qureshi, F. Zafar, Q. Wahab, PWM with Differential Class-E Amplifier for Efficiency Enhancement at Back-Off Power Levels," 57th IEEE MidWest Symposium on Circuits & Systems (MWSCAS) 2014, August 3-6, 2014, College Station, Texas, **USA**.
9. H. R. Khan, A. R. Qureshi, F. Zafar, Q. Wahab, "Design of a Broadband Current Mode Class-D Power Amplifier with Harmonic Suppression," 12th IEEE International NEWCAS 2014, June 22-25, 2014, Trois-Rivières, **Canada**.
10. H.R. Khan, J. Fritzin, A. Alvandpour, Q. Wahab, "A Parallel Circuit Differential Class-E Power Amplifier Using Series Capacitance," **Journal of Analog Integrated Circuits and Signal Processing (Springer)**, April 2013.
11. H. R. Khan, U. Sajid, S. Kanwal, F. Zafar, Q. Wahab, "A Fully Integrated Distributed Active Transformer Based Power Amplifier in 0.13 μm CMOS Technology," 2nd Saudi International Conference on Electronics, Communications & Photonics, April 2013, Riyadh, **Saudi Arabia**.
12. H. R. Khan, F. Zafar, A. R. Qureshi, and Q. Wahab, "Design & EM Simulation of On-chip Transformer Baluns for RF Power Amplifiers," Asia Pacific Symposium on Electromagnetic Compatibility, May 21-24, 2012, **Singapore.**

13. H. R. Khan, F. Zafar, A. R. Qureshi, and Q. Wahab, "Sonnet EM Simulation of High Power Transformers for RF Power Amplifiers," The 28th International Review of Progress in Applied Computational Electromagnetics, April 10-14, 2012, Columbus, Ohio, **USA**.
14. A. R. Qureshi, H. R. Khan and Q. Wahab, "High Efficiency Switching Classes RF Power Amplifiers in Wireless Communication," **NED University Journal of Research (Thematic Issue on Energy)**, January 2012
15. H. R. Khan, A. R. Qureshi, and Q. Wahab, "A Fully Integrated Class-E Power Amplifier in 0.13um CMOS Technology," 9th IEEE International NEWCAS 2011, June 26-29, 2011, Bordeaux, **France**.
16. H. R. Khan and Q. Wahab , "A 24 GHz Class-A Power Amplifier in 0.13um CMOS Technology," International Conference on Solid State and Integrated Circuits, March 11-13, 2011, Shanghai, **China**.
17. H. R. Khan, J. Fritzin, A. Alvandpour, Q. Wahab, "A 900 MHz 26.8 dBm Differential Class-E CMOS Power Amplifier," IEEE 5th German Microwave conference, March 15-17, 2010 in Berlin, **Germany**.