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Rashad.M.Ramzan

SHORT BIOGRAPHY

Rashad. M. Ramzan did his B.Sc. from the University of Engineering and Technology (UET), Lahore, Pakistan, M.Sc. from the Royal Institute of Technology (KTH), Stockholm, and PhD from Linkoping University, Sweden in 1994, 2003, and 2009, respectively, all in Electronics Engineering. He has worked in industry in Pakistan, South Africa, Germany, and USA. He has more than eight years of industrial and six years of teaching experience. He has been involved in research throughout his professional carrier. He has published more than forty journal and conference papers.

RESEARCH INTERESTS

RF Circuits, Software Defined Radio (SDR), Signal Integrity Analysis, Analog & Mixed Circuit IC Design, RF IC Design, Energy Tunneling, Bio-Medical Electronics, and Low Power Circuits, Military Thermal Imaging Systems, Fire Control System of MBTs.

EDUCATION

Ph.D. in Electronics Engineering, Linkoping University, Sweden, June, 2009
Dissertation: ***Flexible Wireless Receiver***: On-Chip Testing Techniques and Design for Test

M.Sc. in Electronics Engineering, Royal Institute of Technology Stockholm, Sweden, 2003
Thesis Title: Basic Cell design for Current Mode Logic (CML) in 0.35μm CMOS
Thesis Venue: Fraunhofer Institute of Electronics, Nuremberg, Germany
Equivalent GPA: 3.9/4

B.Sc in Electronics Engineering with Honors[1], UET, Lahore, Pakistan, 1994
Equivalent GPA: (4/4) Aggregate Marks: 82.5%
Recipient of University Merit[2] Scholarship for excellent performance

SHORT COURSES &TRAININGS

- "Entrepreneurship and New Business Development", Centre for Innovation and Entrepreneurship (CIE) and HELIX VINNOVA Excellence Centre, Sweden, 2009
- "Sigma-Delta Analog to Digital Converters - From Basics to State of the Art" offered by KTH, Stockholm and Spanish Microelectronics Centre, Seville, Spain, 2007
- "Radio Design in Nanometer Technologies", RaMSiS Summer School, Visby, Sweden, 2005
- "Teaching and Learning in Higher Education", Pedagogy training offered by Centre for Education and Teaching, Linkoping, Sweden, 2005
- "Communication Networks for Computers and Unix Network programming" course from University of Illinois at Urbana Champaign, USA, 2001
- Visiting scholar VLSI Lab Ohio State University, Columbus, USA. Performed a study and design of low noise pre-amp for infrared array sensors, 1998

TEACHING EXPERIENCE

- Associate Professor, EE Department, AUS, Sharjah, Aug 2011- Aug 2012
  Taught Courses: Electric Circuits, Electric Circuits and Devices, RF Electronics
- Associate Professor, EE Department, FAST-NU, Islamabad, Pakistan, June 2009- Aug 2011
  Taught Graduate Courses: Digital Communication, RF Electronics, CMOS Radio Transceiver Design, Electromagnetics, Signal Integrity Techniques - IC and PCB Design,
- Doktorand[3], EE Department, Linkoping University, Sweden, 2004 – 2009
  Taught Courses: Radio Transceivers, Radio Electronics, VLSI Project Course, Digital Integrated Circuits, Analog and Discrete Time Circuits
- Assistant Professor, Bahria University, Islamabad, Pakistan, 2004
  Taught Courses: Computer Networks, Digital Electronics, Unix Network programming, Digital Design using FPGAs

INDUSTRIAL

NexGinRC Research Centre, FAST-NU, Islamabad, Project Director,(June 2009 - June 202)

[1] Honors means passed all courses in first attempt securing more than 80% marks
[2] Merit Scholarship was awarded to top three students for excellent academic performance
[3] Doktorand (Swedish) a university employee with 80% research and 20% teaching duties

& RESEARCH EXPERIENCE

As a project director and an active designer, We designed the complete Remote Patient Monitoring System (RPMS) including HCI compliant smart phone applications, CDSS, bio-medical sensor box (Blood pressure, ECG, Pulse, temperature, weight, height and Oxygen saturation) for antenatal care for the rural and remote areas.
(http://www.youtube.com/watch?v=PqgLGOR6D5w)

Fraunhofer Institute of Integrated Circuits, Nuremberg, Germany, (Sept 2003 – June 2004)

Was involved in the project as an IC designer to produce low-cost optical communication transceiver in commercial low cost 0.35μm CMOS.

Communications Enabling Technologies, Islamabad, Member Tech. Staff (1999 – 2002)

Communications Enabling Technology (CET) was a design centre of Avaz Networks; a company based in Irvine, CA USA. The company designed its own proprietary media and communication ASICs (VZM1000, VZM2000) for VoiP enabled telephone exchanges. I have participated in the above project at different levels, working individually and also leading the team of engineers.

- System level architecture design of VZM1000.
- Worked on the RTL synthesis, using DC (Design Complier) and TSMC 0.18u libraries.
- Wrote the RTL (verilog) for different blocks of the media processor.
- Designed hardware test environment for VZM1000 running at 350MHz with Bus speed of 133MHz. The ASIC served as media gateway between PSTN and Data Networks when combined with Packet processor.
- Designed multilayer layers, high speed PCBs with more than 3000 pins as a test platform for verification of RTL before passing Media Processor (VZM1000) to FAB.

My contributions in other projects carried out at CET:

- Designed the PCI plug-in traffic generator for Nortel Networks proprietary switch using QLC protocol and PC based call generator. This customized hardware generated the calls on those specific channels for test and debugging purposes.
- System and PCB design of VoIP (Voice over IP) demo system which consists of SLICS, CO Interface, Ethernet MAC and PHY, FPGA, PCI interface, MIPS processor and 16-Bit CODECs on board.
- Developed the test environment for 100BaseT Ethernet MAC (Media Access Controller) and USB. Verified the RTL and implemented on FPGA for testing.
- Designed and implemented hardware for Encryption Unit for secure telephone, fax and data communications. The system had SLICS, CODEC, Modem, uController, vocoder, memories, ADSP21xx Smart Card interface, display and keyboard with telephone, CO line and fax interfaces.
- Designed the hardware for E1&E3 to 155Mb/sec ATM and 100BaseT Ethernet Encryption/ conversion unit with E3, T3, ATM, Ethernet, H100, and PCI interfaces. The core of the system was MPC 8260 with Power PC core and communication Processor inside the same package.

Advanced Engineering Research Organization, Wah Cantt, Pakistan (1995 – 1999)

- Low noise electronics design, cryogenic cooled electronics, analog IC design for Thermal Imaging applications. I was also involved in system level design and field testing of the thermal imaging system integrated with tanks and aircraft fire control system.
- SMPS (Switch Mode Power Supplies) design to meet the high efficiency and military specification at same time.
- Fire Control System design and testing of Al-Zarar (Modified T-59) Tank to replace its 105mm gun with its 125mm gun.
- High Speed Multilayer PCB design for SMPS, Fire Control system, and Thermal Imaging systems installed in ground and airborne platforms.
- Involved in different qualification, MIL specification testing, and field trial of different military ground and airborne weapon systems.

MANAGEMENT EXPERIENCE

Worked in Pakistan, USA, Germany, Sweden, and South Africa with individuals of diverse cultural, religious, and ethnic backgrounds. I am a good team player and have also successfully managed the teams of engineers and IT professionals meeting the stringent schedules. My last research management position was project director of NexGINRC (http://www.nexginrc.org), a

research center at FAST-NU, Islamabad.

JOURNAL PUBLICATIONS

(THE RESEARCH ACHIEVEMENTS ARE LISTED IN RESEARCH STATEMENT)

1. **R. Ramzan**, O. Siddiqui, A. Nauroze, O. M. Ramahi, "A Microstrip Probe Based On Electromagnetic Energy Tunneling for Extremely Small and Arbitrarily Shaped Dielectric Samples," IEEE Antennas and Wireless Propagation Letters, DOI: 10.1109/LAWP.2015.2412254, Vol. PP, Issue: 99, Pg. 111–111, Jan 2015. 24 Mar 2015. (JCR IF 1.984)
2. S. Arshad, **R. Ramzan**, M. Khurram, Q. Wahab, "A sub-10mW, Noise Cancelling, Wideband LNA for UWB Applications" ELSVIER International Journal of Electronics and Communications, DOI: 10.1016/j.aeue.2014.08.002, Vol. 69, Issue: 1, Pg. 109–118, Jan 2015. (JCR IF 0.696)
3. **R. Ramzan**, F. Zafar, "High-Efficiency Fully CMOS VCO Rectifier for Microwatt Resonant Wireless Power Transfer", IEEE Transaction on Circuits and Systems-II, DOI: 10.1109/TCSII.2014.2386262, Vol.62, Issue: 2, Pg. 134–138, Dec 2014. (JCR IF 1.187)
4. **R. Ramzan**, J. Dabrowski, "RF Calibration of On-Chip DfT Chain by DC Stimuli and Statistical Multivariate Regression Technique" ELSVIER Integration, The VLSI Journal, DOI: 10.1016/j.vlsi.2014.11.006, Vol. 49, Pg. 14-21, Dec, 2014.
5. A. Mustafa, M. Atif, **R. Ramzan**, "Compensation of Nonlinearities in ΣΔ Modulators Using Digital Assisted Analog Electronics Approach", International Journal of Signal Processing Systems (ISSN: 2315-4535), Vol.2, Pg.55–59, Jun 2014.
6. S. Arshad, F. Zafar**, R. Ramzan**, Q. Wahab, "Wideband and multiband CMOS LNAs: State-of-the-art and future prospects", ELSVIER Microelectronics Journal, DOI: 10.1016/j.mejo.2013.04.011, Vol. 44, Issue:9, Pg. 774–786, Sept 2013. (JCR IF 1.557)
7. **R. Ramzan**, F. Zafar, "Figure of Merit for Narrowband, Wideband and Multiband LNAs" Taylor & Francis, International Journal of Electronics, DOI:10.1080/00207217.2012.692635, Vol. 99, Issue:11, Pg. 1603–1610, Jun 2012. (JCR IF 0.44)
8. N. Ahsan, C. Svensson, **R. Ramzan**, J. Dabrowski, A. Ouacha, C.Samuelsson, "A 1.1 V 6.2 mW, wideband RF front-end for 0 dBm blocker tolerant receivers in 90 nm CMOS", Springer Journal of Analog Integrated Circuits and Signal Processing, DOI: 10.1007/s10470-011-9667-9, Vol. 70, Issue: 1, Pg. 79–90, Jan 2012. (JCR IF: 0.591)
9. J. Dabrowski, **R. Ramzan,** "Built-in Loopback Test for IC RF Transceivers", IEEE Transaction on Very Large Scale Integrated (VLSI) Systems (TVLSI), DOI: 10.1109/TVLSI.2009.2019085, Vol. 18, Issue:6 Pg. 933–946, Jun 2010. (JCR IF: 1.373)
10. **R. Ramzan**, S. Andersson, J. Dabrowski, C. Svensson, "Multiband RF Sampling Receiver Front-End with On-Chip Testability in 0.13µm CMOS", Journal of Analog Integrated Circuits and Signal Processing, DOI: 10.1007/s10470-009-9286-x, Vol. 61, Issue:2, Pg. 115–127, Nov 2009. (JCR IF: 0.591)
11. **R. Ramzan**, N. Ahsan, J. Dabrowski, C. Svensson "On-Chip Stimulus Generator for Gain, Linearity, and Blocking Profile Test of Wideband RF Front Ends", IEEE Transactions on Measurement and Instrumentation, DOI: 10.1109/TIM.2009.2036454, Vol. 59, Issue: 11, Pg. 28702876, Jul 2010. (JCR IF: 0.978)
12. **R. Ramzan**, J. Fritzin, J. Dabrowski, C. Svensson, "Wideband Low Reflection Transmission Lines for Bare Chip on Multilayer PCB", Electronics and Telecommunications Research Institute (ETRI) Journal, DOI: 10.4218/etrij.11.0110.0386, Vol. 33, Issue:3, Pg. 335–343, Jun 2011. (JCR Impact Factor: 1.1)
13. **R. Ramzan**, J. Dabrowski, "CMOS blocks for on-chip RF test", Journal of Analog Integrated Circuits and Signal Processing, D.O.I: 10.1007/s10470-006-9615-2, Vol. 49, Issue: 2, Pg. 151-160, Nov 2006. (JCR Impact Factor: 0.591)

CONFERENCE PUBLICATIONS

1. F. Alneyadi, M. Alkaabi, S. Alketbi, S. Hajraf, **R. Ramzan**, "4GHz WLAN RF Energy Harvester for Passive Indoor Sensor Nodes", DOI: 10.1109/SMELEC.2014.6920900 IEEE 11th International Conference on Semiconductor Electronics (ICSE), Pg. 471-474, Kuala Lumpur, Malaysia, 27-29 Aug, 2014.
2. A. Sultan, **R. Ramzan**, D. Wristers, "Design Layout Optimization in the Presence of Proximity-Dependent Stress Effects", DOI: 10.1109/ICICDT.2014.6838594, IEEE International Conference on Integrated Circuit Design and Technology (ICICTD), Pg. 1-4, Austin, Texas, USA, 28-30 May, 2014.
3. O. Siddiqui, **R. Ramzan**, O. M. Ramahi, "Metamaterial-Inspired Dielectric Sensor

Applications", International Conference on Advances in Engineering Materials, Sharjah, UAE, 18-20 Mar, 2014.

4. R. S. Bano, **R. Ramzan**, " COTS Based Multichannel FM receiver and Recorder using SDR Concept" DOI: 10.1109/ICECS.2013.6815392, IEEE International Conference on Electronics, Circuits, and Systems (ICECS), Pg. 213-216, Abu-Dhabi, UAE, 8-11 Dec, 2013.
5. O. Siddiqui, A. Nauroze, **R. Ramzan**, and O. M. Ramahi, "Tunneling of Electromagnetic Energy through Wires in Guided Media," DOI: 10.1109/APS.2013.6711344, IEEE International Symposium on Antennas and Propagation (APSURSI), Pg. 1370-1371, Florida, USA, 7-12 Jul, 2013.
6. A. Nauroze, O. Siddiqui, **R. Ramzan**, and O. M. Ramahi, "Dielectric Sensing based on Energy Tunneling in Wire-loaded Microstrip Cavities", IEEE International Conference on Metamaterials, Photonic Crystals and Plasmonics, Sharjah, UAE, 18-22 Mar, 2013.
7. K. Waseem, A. Javed, **R. Ramzan**, and M. Farooq, "Using evolutionary algorithms for ECG Arrhythmia detection and classification", DOI: 10.1109/ICNC.2011.6022596, Proc. ICNC, Pg.2386-2390, 2011.
8. F. Zafar, H. Abid, J. Ahmed, H. Raza, **R. Ramzan**, and Q. Wahab, "Design of a Highly Linear 900MHz Single Ended LNA in 0.35µm CMOS" DOI: 10.1109/STUDENT.2010.5686993, IEEE Conference on Sustainable Utilization and Development in Engineering and Technology (STUDENT), Pg. 127-130, UTAR, Malaysia, 20-21 Nov, 2010.
9. **R. Ramzan,** N. Ahsan**,** J. Dabrowski, and C. Svensson "A 0.5-6GHz Low Gain Linear RF Front-End in 90nm CMOS", IEEE Mixed Design of Integrated Circuits and Systems Conference (MIXDES), Poland, Pg. 168-171, 23-26 Jun, 2010.
10. **R. Ramzan,** J. Dabrowski "On-chip Calibration of RF Detectors by DC Stimuli and artificial neural networks", DOI: 10.1109/RFIC.2008.4561502, IEEE Radio Frequency Integrated Circuits (RFIC) Symposium, Pg. 571-574, Atlanta Georgia, USA, 15-17 Jun, 2008.
11. **R. Ramzan**, J. Dabrowski "Boosting SER Test for RF Transceivers by Simple DSP Technique", DOI: 10.1109/DATE.2007.364680, IEEE Design Automation and Test in Europe Conference (DATE 2007), Pg. 1-6, Acropolis, Nice, France, 16-20 Apr, 2007.
12. **R. Ramzan**, S. Andersson, J. Dabrowski, C. Svensson "A 1.4V 25mW Inductorless Wideband LNA in 0.13µm CMOS", DOI: 10.1109/ISSCC.2007.373475, IEEE International Solid State Circuits Conference (ISSCC), Pg. 424-613, San Francisco, California, USA, 11-15 Feb, 2007.
13. S. Andersson, **R. Ramzan,** J. Dabrowski, C. Svensson, "Multiband direct RF-sampling receiver front-end for WLAN in 0.13 µm CMOS", DOI: 10.1109/ECCTD.2007.4529563, 18th IEEE European Conference on Circuit Theory & Design (ECCTD), Pg. 168-171, Sept, 2007.
14. J. Dabrowski, **R. Ramzan** "Offset Loopback Test for IC RF Transceivers", DOI: 10.1109/MIXDES.2006.1706647, IEEE Mixed Design of Integrated Circuits & Systems Conference (MIXDES), Pg. 583-586, Gdynia, Poland, 2006.
15. **R. Ramzan**, L. Zou, J. Dabrowski, "LNA Design for on-Chip RF Test", DOI: 10.1109/ISCAS.2006.1693564, IEEE International Symposium on Circuits and Systems (ISCAS), Pg. 472-476, Island of Kos, Greece, May, 2006.
16. **R. Ramzan**, J. Dabrowski, "CMOS blocks for on-chip RF test", Mixed Design of Integrated Circuits and Systems Conference (MIXDES), Krakow, Poland, pp 403-408, 22-24 Jun, 2005.
17. **R. Ramzan**, J. Dabrowski, "Wideband MCML basic cells in 0.35 um CMOS", IEEE Mixed Design of Integrated Circuits and Systems Conference (MIXDES), Krakow, Poland, pp 227-231, 22-24 Jun, 2005.
18. T. Kantasuwan, **R. Ramzan**, J. Dabrowski, "Programmable RF Attenuator for On-Chip loopback Test", IEEE European Test Symposium (ETS), Tallinn, Estonia, pp.28-33, 2005.
19. **R. Ramzan** and J. Dabrowski "On-chip Calibration of RF Detectors by DC Stimuli & Artificial Neural Networks", DOI: 10.1109/RFIC.2008.4561502, Swedish System-on-Chip Conference, Pg. 571-574, Södertuna slott, Gnesta, Sweden, 5-6 May, 2008.
20. **R. Ramzan**, N. Ahsan, J. Dabrowski, and C. Svensson, "0.5-6GHz RF Front-End for Multistandard Receivers in 90nm CMOS with on-Chip Stimulus Generator", Swedish

System-on-Chip Conference, Rusthållargården, Arlid, Sweden, 4-5 May, 200.

21. S. Ahmed, N. Ahsan, A. Blad, **R. Ramzan**, T. Sundstrom, H. Johansson, J. Dabrowski, and C. Svensson, "Feasibility of Filter-less RF Receiver Front-end," Giga Hertz Symposium, Gotenberg, Mar, 2008.
22. S. Andersson, **R. Ramzan**, J. Dabrowski, and Christer Svensson "Flexible Direct RF-Sampling Receiver Front-End in 0.13 µm CMOS", Swedish System-on-Chip Conference, Fiskebackskill, Sweden, 14-15 May, 2007.
23. **R. Ramzan**, S. Andersson, W. Muhammad, and J. Dabrowski "On-Chip BIST for Radio Front-Ends", Swedish System-on-Chip Conference, Kolmården, Sweden, 4-5 May, 2006.
24. T. Kantasuwan, **R. Ramzan** and J. Dabrowski "Programmable Attenuator and Switch for RF Test By Chip Reconfiguration", RadioVetenskap och Kommunikation– Linköping, Sweden, 14-16 Jun, 2005.
25. **R. Ramzan** and J. Dabrowski "DfT Techniques for RF Transceiver Front-End", Swedish System-on-Chip Conference, Tammsvik, Sweden, 18-19 Apr, 2005.

TOOLS, PACKAGES & LANGUAGES

- Verilog and VHDL for digital ASIC design
- C, Basic, Assembly (8051, 8085, ARM), and UNIX network programming
- Matlab and MathCAD for simulation and modeling at system level
- Cadence Tools Suite (Analog Artist, Virtuoso, etc.) for Analog & Mixed Signal IC design
- Synopsys, FPGA Express, Xilinx ISE design Suite, MAX + Plus II design Suite
- Modelsim, VerilogXL, and NC-Verilog for digital IC modeling, design, and simulation
- Protel 99SE, Altium, and PCAD for PCB design
- Agilent-ADS for RF IC design and RF & Microwave PCB design
- GNU Software Defined Radio (SDR) and associated tool suite

PARTICIPATION AS A REVIEWER & PROGRAM COMMITTEE

- Member Technical Program Committee: 9th International Conference on Innovations in Information Technology, March 17-19, 2013. Al Ain, UAE (http://www.it-innovations.ae)
- Member Technical Program Committee: IEEE Conference on Very Large Scale Integration (VLSI-SoC), Santa Cruz, USA, October 7-10, 2012 (http://vlsisoc2012.soe.ucsc.edu)
- Member Technical Program Committee: IEEE Conference on Very Large Scale Integration (VLSI-SoC), Hong-Kong, 3-5 October, 2011 (http://www.ee.cuhk.edu.hk/vlsisoc2011)
- Technical Chair, IEEE International Conference on Emerging technologies, Islamabad, Pakistan, 2010 (http://icet.nu.edu.pk/)
- Reviewer IEEE Transactions of Transactions on Microwave Theory and Techniques
- Reviewer IEEE Transactions on Very Large Scale Integration Systems
- Reviewer IEEE Microwave and Wireless Components Letters
- Reviewer IEEE Transactions of Circuits and Systems- II

AFFILIATIONS

- Senior Member IEEE
- Member Pakistan Engineering Council
- Member Institute of Engineers Pakistan

SUPERVISED AND CO-SUPERVISED THESIS

- PhD: Multistandard LNA Design, NED University Karachi (Under Progress)
- MS Thesis: Rizwana Sher Bano, "Multichannal FM Receiver, Logger and recorder based on SDR Architecture" FAST-NU, Islamabad , 2012.
- MS Thesis: Shawkat Ali , "25 watts, 80% PAE Class-E RF Power Amplifier for
- 88 to108MHz Frequency band" FAST-NU, Islamabad , 2012.
- MS Thesis: Muhammad Atif, "Modeling of DAC non-Linearity inside ΣΔ ADC Loop", FAST-NU, Islamabad , 2011.
- MS Thesis: Atta-ul-Mustafa, "Compensation of DAC non-linearity in multi-bit ΣΔ ADC using normalized LMS algorithm", FAST-NU, Islamabad , 2011.
- MS Thesis: Mats Carlsoon, "Utilizing FPGAs for Data Acquisition at High Data Rates", 2009

HONORS AND DISTINCTIONS

- Best paper award, Swedish System-on-Chip Conference, Arlid, Sweden, 2009
- Outstanding paper award, MIXDES conference, Poland, 2005
- Selected as 'Doktorand', a paid research position in Electrical Engineering Department,

Linkoping University, Sweden from 2004 – 2009

- Ph.D merit scholarship from Ministry of Education, Govt. of Pakistan in 1995 for higher studies abroad (not availed)
- U.E.T Lahore, Pakistan, merit scholarship for excellent academic performance. 1993 – 1994
- 2nd Position in 3rd B.Sc EE annual exam, U.E.T Lahore, Pakistan out of 300 Students 1993

REFERENCES

- Prof. Dr. Hasan Al Nashash, Eectrical Engineering, American University, Sharjah (Cell: *+971-50-4825001,* hnashash@aus.edu, http://www.aus.edu)
- Prof. Dr. Atila Alvanpour, Head of Electronic Devices Group, Linkoping University, Sweden (Office: *+46-13-285818,* atila@isy.liu.se, http://www.ek.isy.liu.se/~atila)
- Prof. (Emeritus) Dr. Christer Svensson, Fellow IEEE, Linkoping University, Linkoping, Sweden (Mobile: *+46-70- 281223*, christer@isy.liu.se , http://www.ek.isy.liu.se/~christer)
- Prof. Dr. Jerzy Dabrowski, My Ph.D Supervisor, EE Department, Linkoping University, Sweden (Office: *+46-13-*281224, jdab@isy.liu.se, http://www.ek.isy.liu.se/~jdab)