CURRICULUM VITAE

Khaldoon S. Abugharbieh

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1. Education

- Ph.D. (Electrical Engineering) 2009, Santa Clara University, Santa Clara, CA, USA
- M.Sc. (Electrical Engineering) 1996, Stanford University, Stanford, CA, USA
- B.Sc. (Electrical Engineering) 1994, Arizona State University, Tempe, AZ, USA

2. Ph.D. Dissertation

An Ultra Low Power 10 Gbps IC Output Driver with Programmable Pre-Emphasis, Santa Clara University, Santa Clara, CA, USA

3. Employment

Academic Positions

- Professor, Electrical Engineering, Princess Sumaya University for Technology, Amman, Jordan, (March 2020-Present)
- Associate Professor, Electrical Engineering, Princess Sumaya University for Technology, Amman, Jordan, (Feb 2015-Feb 2020)
- Assistant Professor, Electrical Engineering, Princess Sumaya University for Technology, Amman, Jordan, (Feb 2010- Feb 2015)

Administrative Positions

- Dean of School of Graduate Studies and Scientific Research, Princess Sumaya University for Technology, Amman, Jordan, (Sep 2020- Sep 2022)
- Dean of School of Engineering, Princess Sumaya University for Technology, Amman, Jordan, (Sep 2017- Sep 2019)
- Head of Electrical Engineering Department, Princess Sumaya University for Technology, Amman, Jordan, (Sep 2015 – Aug 2017)

Industrial (none academic) Positions

- National Semiconductor Corp, Santa Clara, CA USA (2006 – 2009)
  - Position: Principal Circuit Design Engineer
- LSI Corp, Milpitas, CA USA (1999 – 2006)
  - Position: Circuit Design Manager
- Cypress Semiconductor Corp, San Jose, CA USA (1995 – 1999)
  - Position: Sr. Design Engineer

4. Research Interests

- VLSI
- Analog and Mixed Signal Microelectronics Design.
- Design and Verifications Methodologies for Transistor Level Integrated Circuits

5. Teaching Experience

- ***Graduate Electrical Engineering Courses***
  - Advanced Electronics: EE21701
  - VLSI Design: EE21702
  - Mixed Signal IC Design for Data Communications: EE20720

- ***Undergraduate Electrical Engineering Courses***
  - Electrical Circuits I: 24221
  - Electronics I: EE21231
  - Electronics II: EE21331
  - Digital Electronics: EE21332
  - VLSI Circuits: EE 21531
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6. Supervision of Graduate Research

- **Ph.D. (Electrical Engineering Department, Santa Clara University, California, USA)**

  Sanad Kawar, "An Input Power-Aware Maximum Efficiency Tracking Technique for Energy Harvesting in IoT Applications", 2020.

- **M.Sc. (Electrical Engineering Department, Princess Sumaya University for Technology, Amman, Jordan)**

  - Moh'd Rasoul Masadeh, "Design of a CMOS Continuous Time Linear Equalizer Using Low Supply Voltage", 2021.
  - Mohammed Al-Fayyad, "Design and Simulations of a Low Power Static Random Access Memory System", 2019.
  - Abdulla Deeb, "Design of an Analog IC Filter for Mixed-Mode Applications", 2018.
  - Osama Bondog, "A D-Type Flip-Flop with Enhanced Timing Using CMOS Technology and Low Supply Voltage", 2017.
  - Jannah Al-Hashimi, "Design of a Switched-Mode Operational Amplifier for Analog Signal Low Voltage Applications", 2017.
  - Abdallah Hasan, "High Performance Sample and Hold Circuit Used in Mixed Signal Applications", 2016.
  - Waseem Al-Akal, "A High Performance CMOS Adder", 2016.
  - Mustafa Shihada, "High Speed Front-End CMOS Receiver with Signal Equalization", 2016.
  - Mahmoud Mohammed, "Design of a voltage reference circuit using MOSFET transistors", 2014.
  - Sanad Kawar, "A high performance loss of signal detector for serial transceiver ICs", 2014.
  - Hazem Marar, "A High Performance 1.8V PMOS-Based LVDS Driver", 2012.

7. US Issued Patents

- **K. Abugharbieh**, G. Meredith, C. Wyland, P. Wu, H. Liu, S. Stokes, Y. Wang, "Capacitors within an interposer coupled to supply and ground planes of a substrate," US Patent 9337138, May 10, 2016

- **K. Abugharbieh**, D. Ferris, L. Jones, "Skew compensation for a stacked die," US Patent 9003221, April 7, 2015

- M. Fanaswalla, **K. Abugharbieh**, D. Ferguson, "Receiver Circuit," US Patent 8838056, Sep 16, 2014

- **K. Abugharbieh**, Y. Cao, G. Richmond, "Bandgap bias circuit compensation using a current density range and resistive loads," US Patent 8638084, January 28, 2014.

- **K. Abugharbieh**, J. Mohan, I. Duzevik, "Low voltage differential signal driver with reduced power consumption," US Patent 8638125, January 28, 2014.

- **K. Abugharbieh**, M. Marlett, "Voltage mode line driver and pre-emphasis circuit," US Patent 8358156, January 22, 2013.

- M. Marlett, **K. Abugharbieh**, “Impedance tuning for termination,” US Patent 8446169, May 21, 2013.

- **K. Abugharbieh**, P. Jing, “Reference voltage shifting technique for optimizing SNR performance in pipeline ADCs with respect to input signal,” US Patent 7535399, May 19, 2009.

- S. B. Raza, A. X. Meng, D. A. Krall, **K. Abugharbieh**, R. J. Bettman, “Design architecture for a parallel and serial programming interface,” US Patent 6510487, January 21, 2003.

- **K. Abugharbieh**, S.K. Min, “Method, circuit and/or architecture to improve the frequency range of a voltage controlled oscillator,” US Patent 6275116, August 14, 2001.

- **K. Abugharbieh**, S.K. Min, “Circuit and method for controlling an output of a ring oscillator,” US Patent 6275117, August 14, 2001.

- **K. Abugharbieh**, D. Y. Yu, R. J. Bettman, “Stable adjustable programming voltage scheme” US Patent 6147908, November 14, 2000.

- T. M. Lacey, **K. Abugharbieh**, “Adjustable verify and program voltages in programmable devices,” US Patent 6130842, October 10, 2000.

8. Refereed ISI Journals

- K. Abugharbieh, B. Yaseen, A. Deeb, H. Ahmad, and A. Jeit, “A Fully Integrated Mixed-Mode LDO Regulator with Fast Transient Response Performance,” *J CIRCUIT SYST COMP*, July 2022, doi: 10.1142/S0218126622503005.

- S. Kawar, S. Krishnan, **K. Abugharbieh**, "An Input Power-Aware Efficiency Tracking Technique With Discontinuous Charging for Energy Harvesting Applications," *IEEE Access*, vol. 8, pp. 135195-135207, July, 2020.

- **K. Abugharbieh**, W. Marar, “Integrating Multiple State of Art Computer Aided Design Tools in Microelectronics Circuit Design Classes,” *Computer Applications in Engineering Education*, vol . 27, issue 5, pp. 1156-1167, September, 2019.

- K. Gharbieh, M. Ranneh, **K. Abugharbieh**, “A wide-range 22-GHz LC-based CMOS voltage controlled oscillator,” *International Journal of Electronics*, vol. 105, issue 6, pp. 951-968, February, 2018.

- **K. Abugharbieh**, K. Gharbieh, “A programmable 40 Gb/s SST driver with high-frequency signal-boost capability in 28 nm CMOS,” *Analog Integrated Circuits and Signal Processing*, vol. 92, issue 1, pp. 115-129, July, 2017.

- S. Kawar, **K. Abugharbieh**, W. Al-Akel, M. Mohammed, "A 10 Gbps differential low-power loss of signal detector for AC-coupled serial transceivers in 28nm CMOS technology," *The Microelectronics Journal*, vol. 56, pp. 65-73, October, 2016.

- **K. Abugharbieh**, A. Balabanyan, A. Durgaryan, V. Melikyan, "Line-impednace matching and signal conditioning capabilities for high-speed feed-forward voltage-mode transmit driver," *The Microelectronics Journal*, vol. 55, pp.26-39, September 2016.

- M. Mohammed, **K. Abugharbieh**, M. Abdelfattah, S. Kawar, "Design methodology for MOSFET-based voltage reference circuits implemented in 28 nm CMOS technology," *International Journal of Electronics and Communications*, vol. 70, issue 5, pp. 252—262, May, 2016.

- S. D. Vamvakos, C. R. Gauthier, C. Rao, A. Wang, K. R. Canagasaby, **K. Abugharbieh**, P. Choudhary, S. Dabral, S. Desai, M. Hassan, K. C. Hsieh, B. Kleveland, G. Mandal, R. Rouse, R. Saraf, J. Yeung , Y. Cao, "A 2.488–11.2 Gb/s SerDes in 40 nm low-leakage CMOS with multi-protocol compatibility for FPGA applications," *Analog Integrated Circuits and Signal Processing*, vol. 78, issue 2, pp. 259-273, February, 2014.

- **K. Abugharbieh**, Y. Koh, S. Krishnan, J. Mohan, "A 33 mW 12.5Gbps BiCMOS transmitter for high speed backplane applications," *The Microelectronics Journal*, vol. 45, issue 1, pp. 110-118, January, 2014.

- M. Mohammed, S. Kawar, **K. Abugharbieh**, "Methodology for designing and verifying switched-capacitor sample and hold circuits used in data converters," *IET circuits, devices and system*, vol. 8, issue 4, pp. 252—262, July, 2014.

- T. A. Al-Maaita, A. H. Tahboub, **K. AbuGharbieh**, "A 10 GHz wideband VCO with low KVCO variation," *The Microelectronics Journal*, vol. 44, issue 2, pp. 103–118, February, 2013.

- H. W. Marar, **K. Abugharbieh**, A. Al-Tamimi, "A 1.8 V low power 5 Gbps PMOS-based LVDS output driver with good return loss performance," *Analog Integrated Circuits and Signal Processing*, vol 79, issue 1, pp. 1-13, February, 2014.

- **K. Abugharbieh**, J. Mohan, V. Devnath, I. Duzevik, S. Krishan, "An Ultra Low Power 10 Gbps LVDS Output Driver," *IEEE transactions on Circuits and Systems I: Regular Papers*, vol. 57, issue 1, pp. 262-269, January, 2010.

- H.J. Song, M. J. Rack, **K. Abugharbieh**, S. Y. Lee, V. Khan, D. K. Ferry, D. R. Allee, "25 nm chromium oxide lines by scanning tunneling lithography in air," *Journal of Vacuum Science and Technology*, vol. 12, issue 6, pp. 3720-3724, November, 1994.

9. Refereed IEEE Conferences

- S. Kawar, S. Krishnan, and **K. Abugharbieh**, "Power Management for Energy Harvesting in IoT – A Brief Review of Requirements and Innovations," in *2021 IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, Lansing, MI, USA, Aug. 2021, pp. 360–364

- E. Al-Qaralleh, B. H. Sababha, and **K. Abugharbieh**, "Integrating Design Thinking in Freshmen-Level Engineering Curriculum," in *2021 Innovation and New Trends in Engineering, Science and Technology Education Conference (IETSEC)*, Amman, Jordan, May 2021, pp. 1-6.

- J. Al-Hashimi and **K. Abugharbieh**, "Design of a Switched-Mode Operational Amplifier Operating With a 0.5V Supply Voltage," in *2021 19th IEEE International New Circuits and Systems Conference (NEWCAS)*, Toulon, France, Jun. 2021, pp. 1–4.

- **K. Abugharbieh**, B. Yaseen and A. Deeb, "A Fully Integrated 1.2V LDO Regulator," *2020 32nd International Conference on Microelectronics (ICM)*, Aqaba, Jordan, December 2020, pp. 1-4.

- A. Hasan, **K. Abugharbieh**, M. Al-Mousely and W. Al-Akel, "A Low-Power 25GS/Sec Sample and Hold Circuit with Active-Load Inductors," in proceedings of the *2020 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, London, ON, Canada, 2020, pp. 1-4.

- M. AL-Fayyad and **K. Abugharbieh**, "A 0.3V 15.6MHz 7T SRAM with Boosted Write and Read Worldlines," in proceedings of the *2020 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, London, ON, Canada, 2020, pp. 1-4.

- O. Bondoq, **K. Abugharbieh** and A. Hasan, "A D-Type Flip-Flop with Enhanced Timing Using Low Supply Voltage," in proceedings of the *2020 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, London, ON, Canada, 2020, pp. 1-4.

- S. Kawar, S. Krishnan, **K. Abugharbieh**, "An Input Power-Aware Efficiency Tracking Technique for Energy Harvesters in IoT," in proceedings of the *IEEE International Symposium on Circuits and Systems (ISCAS)*, Sapporo, Japan, May, 2019.

- W. Al-Akel, **K. Abugharbieh**, A. Hasan, H. Marar, " A Power Efficient 500MHz Adder," in proceedings of the *IEEE SouthEastCon*, Huntsville, USA, April, 2019, pp. 1-6.

- A. Deeb, **K. Abugharbieh**, "A CMOS gm-C Low-Pass Filter for Direct Conversion Receivers with Tuning Capability," in proceedings of the *IEEE SouthEastCon*, Huntsville, USA, April, 2019, pp. 1-4.

- S. Kawar, S. Krishnan, **K. Abugharbieh**, "A Discontinuous Charging Technique with Programmable Duty-Cycle for Switched-Capacitor Based Energy Harvesting Circuits in IoT Applications," in proceedings of the *31st IEEE International System-on-Chip Conference (SOCC), Arlington*, VA, United States, September, 2018, pp. 19-22.

- **K. Abugharbieh**, K. Gharbieh, "A 20 Gbps voltage mode transmitter with a high-frequency signal boost in 28nm CMOS technology," in proceedings of the *IEEE International New Circuits and Systems Conference (NEWCAS)*, Grenoble, France, June, 2015, pp. 1-4.

- A. Durgaryan, A. Balababyan, V. Melikyan, **K. Abugharbieh**, "Pull-Up/Pull-Down Line Impedance Matching Methodology for High Speed Transmitters," in proceedings of the *IEEE International Conference on IC Design and Technology*, Austin, TX, USA, 2014.

- S. Kawar, **K. Abugharbieh**, W. Al-Akel, M. Mohammed, "A 10 Gbps Loss of Signal Detector for High-Speed AC-Coupled Serial Transceivers in 28nm CMOS Technology," in proceedings of the *IEEE International Conference on IC Design and Technology*, Austin, TX, USA, 2014.

- M. Mohammed, **K.Abugharbieh**, M. Abdelfattah, S. Kawar, "Design of a Voltage Reference Circuit Based on Subthreshold and Triode MOSFETS in 90nm CMOS," in proceedings of the *IEEE International Conference on IC Design and Technology*, Austin, TX, USA, 2014.

- E. Wu, **K. Abugharbieh**, B. Banijamali, S. Ramaligam, P. Wu, C. Wyland, "Interconnect and package design of a heterogeneous stacked-silicon FPGA," in proceedings of the *IEEE Custom Integrated Circuits Conference*, San Jose, CA, USA, 2013, pp. 1-8.

- S. D. Vamvakos, C.R. Gauthier, C. Rao, K.R. Canagasaby, P. Choudhary, S. Dabral, S. Desai, M. Hassan, K.C. Hsieh, B. Kleveland, G. Mandal, R. Rouse, R. Saraf, A. Wang, J. Yeung, **K. Abugharbieh**, Y. Cao, "A 2.488-11.2 Gb/s multi-protocol SerDes in 40nm low-leakage CMOS for FPGA applications," in proceedings of the *55th IEEE International Midwest Symposium on Circuits and Systems*, Boise, ID, USA, 2012, pp. 5-8.

- L. Madden, E. Wu, K. Namhoon, B. Banijamali, **K. Abugharbieh**, S. Ramalingam, W. Xin, "Advancing high performance heterogeneous integration through die stacking," in proceedings of the *European Solid-State Device Research Conference, Bordeaux, France,* 2012, pp. 18 – 24.

- **K. AbuGharbieh**, M. Abdelfattah, T. A. Al-Maaita, A. H. Tahboub, "A Wide Tuning Range 11.8 GHz Ring Oscillator VCO with Temperature and Process Compensation," in proceedings of the *IEEE Eurocon Conference*, Zagreb, Croatia, July, 2013, pp. 1844 – 1848.

- S. Kawar, M. Mohammed, **K. Abugharbieh** "Design and Simulation Methodology for Switch-Cap Circuits Used in Data Converter Applications," in the proceedings of the *24th IEEE International conference on Microelectronics*, Algiers, Algeria, December, 2012, pp.1-4.

- H. W. Marar, **K. Abugharbieh**, A. Al-Tamimi, " A power efficient 3-Gbits/s 1.8V PMOS-based LVDS output driver," in proceedings of the *19th IEEE International Conference on Electronics, Circuits and Systems*, Seville, Spain December, 2012, pp. 240-243.

- J. Al-Hashimi, S. Tomoq, **K. Abugharbieh**, Y. Al-Qudah, M. Shihadeh, "An SRAM Based Testing Methodology for Yield Analysis for Semiconductor ICs," in proceedings of the *20th IEEE International Conference on Electronics, Circuits and Systems,* Abu Dhabi, UAE, December, 2013, pp. 417-420.

- I. Abdo, **K. Abugharbieh**, "A 14.7 GHz Wideband 28nm CMOS Ring VCO," in proceedings of the *20th IEEE International Conference on Electronics, Circuits and Systems,* Abu Dhabi, UAE, December, 2013, pp. 909-912.

- M. Abdelfattah, A. Hamkari, **K. Abugharbieh**, "A 21 GHz Wide Frequency Tuning Range LC VCO with Low KVCO," in proceedings of the *20th IEEE International Conference on Electronics, Circuits and Systems,* Abu Dhabi, UAE, December, 2013, pp. 913-916.

- M. Mohmammed, **K. Abugharbieh**, S. Kawar,"Design of a Sub 1-V MOSFET Based Voltage Reference Circuit Operating in Subthreshold Region," in proceedings of the *20th IEEE International Conference on Electronics, Circuits and Systems,* Abu Dhabi, UAE, December, 2013, pp. 897-900.

- **K. Abugharbieh**; J. Mohan, V. Devnath, I. Duzevik, S. Krishan,"An ultra low power 10 Gbps LVDS output driver," in proceedings of the *IEEE Bipolar/BiCMOS Circuits and Technology Meeting*, Monterey, CA, USA, October, 2008, pp. 5 – 8.

- **K. Abugharbieh**, J. Mohan, V. Devnath, S. Krishnan, "A low power 10 Gbps voltage mode output driver with good return loss performance," in proceedings of the *IEEE 20th International Conference on Microelectronics*, Sharjeh, UAE, December, 2008, pp. 341-344.