

Curriculum Vitae

Angsuman Roy

Contact Information

Angsuman Roy

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Education

-M.S., Electrical Engineering; University of Nevada, Las Vegas; Las Vegas, Nevada; 2016

-B.S., Electrical Engineering; University of Nevada, Las Vegas; Las Vegas, Nevada; 2013

Employment

Analog Design Engineering Intern

Power Products Division – Linear Technology Corporation (February 2017 - April 2017)

-Developed applications circuits for Linear Technology ICs. Main focus was on boost, SEPIC and CUK topologies for automotive, LIDAR and telecom applications. Voltage ranges from 3-80V with switching frequencies up to 2 MHz.

Teaching/Research Assistant

Electrical and Computer Engineering – University of Nevada, Las Vegas (Sept. 2013 - May 2016)

-Designed, fabricated and tested multiple CMOS ICs such as sigma-delta ADCs and single photon detection systems comprised of APDs, SiPMs and TIAs.

-Supervised a team of 11 undergraduate student researchers.

- Taught Engineering Electronics I Laboratory and developed most of the curriculum. (Volunteer)
- Taught Electric Circuits I Discussion with a focus on SPICE simulation and PCB design. (Volunteer)
- Revamped the entire Electric Circuits II Laboratory curriculum by rewriting all lab assignments.
- Taught Electric Circuits II Laboratory.

Engineering Specialist

Youtronix (Mar. 2012 – May 2016)

www.youtronix.com

- Designed, fabricated and tested board level electronic solutions for clients.
- Lead engineer for a medical product from conception to manufacturing and ensured that the product met FDA regulations and UL 60601 standards.

Undergraduate Research Assistant

Security Science and Engineering – University of Nevada, Las Vegas (April 2012 – April 2013)

- Designed, fabricated and tested high speed silicon carbide electronics for pulsed power applications and streak cameras.

Solid-Stage and Photonics Research – University of Nevada, Las Vegas (Sept. 2009 – Sept. 2010)

- Designed, fabricated and tested a novel LED lighting system.

Materials Performance Laboratory – University of Nevada, Las Vegas (summer 2005, summer 2006, and summer 2007)

- Metallurgical sample preparation and scanning electron microscopy.

Research

High-Sensitivity Monolithic Silicon APD and ROIC

- Designed, fabricated and tested an IC containing an array of avalanche photodiodes (APD), silicon photomultipliers (SiPM) and transimpedance amplifiers (TIA).
- Purpose of the IC was low cost single photon detection in a commercially available CMOS process.
- IC was laid out using Electric VLSI and fabricated in On Semiconductor's 500 nm C5 process.

Quantum Key Distribution (QKD)

- Designed, fabricated and tested two ICs containing an array of avalanche photodiodes (APD), silicon photomultipliers (SiPM) and transimpedance amplifiers (TIA).
- Purpose of the IC was low cost single photon detection for a quantum key distribution receiver.
- ICs were laid out using Electric VLSI and fabricated in On Semiconductor's 500 nm C5 process.

Low Power Passive Sigma Delta ADC

- Designed, fabricated and tested two ICs containing continuous-time and switched capacitor passive sigma-delta modulators.
- Purpose of the ICs was to develop a low power sigma-delta ADC for use in power critical applications and integration into older CMOS processes.
- ICs were laid out using Electric VLSI and fabricated in On Semiconductor's 500 nm C5 process.

Activities

Graduate Student Advisor

UNLV FSAE Electric (August 2015-August 2016)

- Wrote proposal to fund the new Formula SAE Electric team.
- Provided technical advice to students.

Graduate Student Advisor

IEEE Student Branch (August 2015 - August 2016)

- Advised the IEEE student branch's executive board.
- Gave multiple presentations on test equipment usage and soldering.

Founder and President

UNLV Practical Electronics Club (Sept 2011 – May 2013)

- Founded a new club to encourage students to pursue hands on electronics projects.

Awards

Best Student Paper Award at Dallas Circuits and Systems 2015 Conference

Sustainability Award at Senior Design Competition for "Wireless Energy-Harvesting Sensors" (December 2012)

1st Place in ECE at Senior Design Competition for "Wireless Energy-Harvesting Sensors" (December 2012)

Inducted to Tau Beta Pi (December 2010)

Finalist at the 2007 Intel International Science and Engineering Fair (May 2007)

Publications

1. Roy, A. and Baker, R. J., "A Low-Power Switched-Capacitor Passive Sigma-Delta Modulator," Proceedings of 11th IEEE Dallas Circuits and Systems Conference, October 12-13, 2015.
2. Roy, A., Meza, M., Yurgelon, J., and Baker, R. J., "An FPGA Based Passive K-Delta-1-Sigma Modulator," IEEE 58th International Midwest Symposium on Circuits and Systems, pp. 121-124, August 2-5, 2015.
3. Roy, A. and Baker, R. J., "A Passive 2nd -Order Sigma-Delta Modulator for Low-Power Analog to Digital Conversion," Proceedings of the 57th Midwest Symposium on Circuits and Systems, pp. 326-329, August 3-6, 2014.