

## Sneha Arun Lele

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CONTACT INFORMATION	2124 Cheshire Bridge Road, Apt 2102 Atlanta, GA 30324, US	519-697-4271 sneha.lele@gmail.com
RESEARCH INTERESTS	Analog/digital circuit design and analysis, signal processing, mixed-signal integrated circuits, numerical modeling.	
EDUCATION	<b>The University of Western Ontario</b> , London, ON	
	<b>Ph.D.</b> , Electrical & Computer Engineering Thesis Topic: <i>Integrated Sensing Devices</i> Advisors: Dr. Robert Sobot, Ph.D and Dr. Tarlochan Sidhu, PEng, CEng	September 2013
	<b>M.E.Sc.</b> , Electrical & Computer Engineering (Transferred to doctoral program)	August 2009
	<b>VESIT, University of Mumbai</b> , Mumbai, India	
	<b>B.E.</b> , Electronics	June 2006
PROFESSIONAL EXPERIENCE	<b>Analog Design Engineer</b> I/O IP Design Group Advanced Micro Devices, Inc. (AMD), Markham ON, Canada Manager: Jason Mangattur	October 2013 to Present
	<b>Teaching Assistant</b> • ES 1036 - Introduction to C++ Instructor: Dr. Quazi Rahman, Electrical & Computer Engineering, The University of Western Ontario, London ON, Canada • ECE 3349 - Introduction to VLSI Instructor: Dr. Robert Sobot, Electrical & Computer Engineering, The University of Western Ontario, London ON, Canada	September 2009 to April 2013
	<b>Executive Engineer</b> Transportation Systems Division, Siemens Ltd., Mumbai, India Manager: V.K.Krishnan	July 2006 to July 2008
PUBLICATIONS	<ol style="list-style-type: none"><li><b>S. Lele</b>, R. Sobot, and T. Sidhu, "Piezoelectric Transformer Based Disturbance Monitoring Methodology for High-Voltage Power Supply Lines", <i>IEEE Sensors Journal</i> (DOI 10.1109/JSEN.2013.2296504)</li><li><b>S. Lele</b>, R. Sobot, and T. Sidhu, "Numerical Modeling of Piezoelectric Transformers for Low Frequency Measurement and Disturbance Monitoring in Power Systems", <i>IEEE Electrical Power and Energy Conference</i> at London (EPEC 2012), London ON, Canada, October 10-12, 2012</li><li><b>S. Lele</b>, R. Sobot, "Piezoelectric Transformers for Low Frequency Measurement in Power Systems", <i>IEEE International Conference for Upcoming Engineers (ICUE 2012)</i>, Toronto ON, Canada, August 2, 2012</li><li><b>S. Lele</b>, R. Sobot, and T. Sidhu, "Frequency Measurement and Disturbance Monitoring Using Piezoelectric Transformers", <i>Power and Energy Conference</i> at Illinois (PECI 2012), Illinois, U.S.A., February 24-25, 2012</li></ol>	

5. N. Najmaei, **S. Lele**, M.R. Kermani, and R. Sobot, "Human Factors for Robot Safety Assessment", *IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2010)*, Montreal, Canada, July 6-9, 2010
6. **S. Lele**, R. Sobot, M. Waxer and J. Bruce Morton, "Steady-state Visually Evoked EEG Signal Processing with Tuneable Continuous-time Bandpass Sigma-Delta Modulators", *19th European Conference on Circuit Theory & Design (ECCTD 2009)*, Antalya, Turkey, August 23-27, 2009
7. D. V. Gadre, A. Chugh, P. Shah and **S. Lele**, "Network of Keypads", *Circuit Cellar*, Issue 203, June 2007

RESEARCH  
PROJECTS

**Sensing and Disturbance Monitoring Methodology for High-voltage Power System Lines** Sept 2009 – Sept 2013

Ph.D. research, in association with GE Multilin, Canada, based on integration of control circuits for power relays. The objective of this work was to develop a microsystem methodology to detect voltage and current disturbances in high voltage power lines. The system employed a piezoelectric transformer and Hall-effect sensor with an integrated and optimized signal processing unit designed using Spectre (Virtuoso Schematic and Analog Design) simulator, COMSOL, PSCAD/EMTDC, Matlab and active/passive circuits.

**Steady-state Visually Evoked EEG Signal Processing with Tuneable Sigma-Delta Modulators** Dec 2008 – Mar 2009

Signal Processing unit designed for  $0.18\mu\text{m}$  CMOS process for application in a non-invasive brain-machine interface (BMI) prototype system, which allows the simple control of a switch.

**Wireless collection of train maintenance data** June – July 2006

This project with Delhi Metro Rail Corporation (DMRC), involved reliable wireless transmission of data from metro trains to transceivers placed up to 150 meters away that involved replacing the existing wired RS232 link. Two solutions were designed and tested, one using ZigBee transceivers and the other using WiFi routers.

ACADEMIC  
PROJECTS

**Three-dimensional piezoelectric transformer and thermocouple modeling in COMSOL** October – December 2010

Modeling of a 3D piezoelectric transformer in COMSOL and its eigen, frequency and time domain analysis using real-time voltage signals. To understand the phenomenon of temperature measurement and control in integration of circuits, thermocouple principle was also simulated.

**Simple brain-machine interface circuit using FPGAs** February – April 2010

Brain-machine prototype extended to design an FPGA-based BMI development platform using Xilinx ISE Design Suite 11 for Virtex5 family, to generate simple on-off commands to control a robotic manipulator based on decoded brain signals, using VHDL.

**Behavioral modeling of mixed-signal systems** September – December 2008

Study and design of basic analog and digital blocks in Cadence ( $0.18\mu\text{m}$  CMOS technology) with schematic, layout, DRC, LVS, parasitic extraction, and analysis of noise margin, propagation delay, power dissipation, etc.

Behavioral modeling of amplifier circuits, filter circuits, closed loop systems, adaptive equaliser, PLL and Sigma-Delta modulator using Cadence Verilog-A ModelWriter tool.

**Multi-Utility Sensor Network** August 2005 – January 2006

This project involved design and implementation of a wired sensor network capable of sensing and controlling physical parameters involved in any kind of process control with the use of Atmels AVR microcontrollers connected over RS485 bus in a multi-drop configuration.

HONORS & AWARDS	<b>Student Paper award (3<sup>rd</sup> place)</b>	August 2012
	IEEE International Conference for Upcoming Engineers (ICUE 2012), Toronto ON, Canada	
	<b>Nominated for Graduate Student Teaching Award</b>	April 2010
	Graduate Teaching Association (PSAC Local 610), The University of Western Ontario, London ON, Canada	
	<b>Request of early transfer to a Ph.D. program granted due to above average academic record</b>	July 2009
	Electrical & Computer Engineering, The University of Western Ontario, London ON, Canada	
	<b>Awarded the J.R.D. Tata Scholarship for academic excellence</b>	2003–2006
	J.R.D. Tata Trust, Mumbai, India	

ORGANIZATIONS AND VOLUNTEER EXPERIENCE	Student Member – IEEE	March 2010 – Present
	Member – IEEE Women in Engineering	March 2010 – Present
	Volunteer for Engineering Badge Day for Girl Guides to introduce girls to different streams of engineering	May 2013
	The University of Western Ontario	
	Supporter of Terry Fox Foundation for Cancer Research	September 2012 – Present

TECHNICAL SKILLS	<b>Languages:</b> C, C++, GNU Octave, LaTeX, VHDL, Perl, HTML
	<b>Software:</b> Matlab, LabView, VisualC++, PSCAD, COMSOL, SolidWorks
	<b>EDA &amp; Simulation tools:</b> Cadence, Synopsys, Totem (MMX, Pathfinder), Eagle PCB, SPICE, KiCAD
	<b>Systems:</b> Windows (98, 2000, XP, Vista, 7), GNU/Linux, Mac OS

REFERENCES	Jason Mangattur	
	Manager Design Engineering CTIOMKDC Advanced Micro Devices, Inc., Canada	Phone: 905-882-2600 x71859 E-mail: jason.mangattur@amd.com
	Robert Sobot	
	Associate Professor Electrical & Computer Engineering The University of Western Ontario, Canada	Phone: 519-661-2111 x88428 E-mail: rsobot@uwo.ca
	V.K.Krishnan	
	IC MOL RA MT PM2 CMRL Project, Rail Automation Infrastructure & Cities Sector Siemens Ltd., India	Phone: +91-44-3047-4050 E-mail: vk.krishnan@siemens.com