



**IEEE SOLID-STATE
CIRCUITS SOCIETY**
Where ICs are in IEEE

January 2017

EDUCATION

Upcoming Webinar



"Enabling and Exploiting Machine Learning in Ultra- low-power Devices," Presented by Naveen Verma

Tuesday, February 28 @ 12:00 PM EST.

*Professional Development Hours can be requested for this webinar.

[**CLICK HERE TO REGISTER!**](#)

Professor Verma will be available during the webinar to answer any questions. Please follow the link to register for the webinar which is free and

open to all SSCS members.

Abstract: Increasingly, sensing devices are required that are not only capable of acquiring complex embedded signals, but also capable of performing high-value analyses on the signals they acquire. Machine-learning algorithms play an important role, because they enable modeling and inference over signals that may otherwise be too complex to model through analytical methods. This talk looks at such algorithms first from the perspective of enabling them within severely resource-constrained devices, and then from the perspective of exploiting them towards more resource-efficient implementations of systems. Through several systems based on custom IC prototypes, this talk explores many avenues that machine-learning algorithms give rise to for addressing system bottlenecks. The focus on resource-efficient implementations directs us to use the algorithms in new ways, then leading to unconventional circuit architectures.

Bio: Naveen Verma received the B.A.Sc. degree in Electrical and Computer Engineering from the University of British Columbia, Vancouver, Canada in 2003, and the M.S. and Ph.D. degrees in Electrical Engineering from Massachusetts Institute of Technology in 2005 and 2009 respectively. Since July 2009 he has been with the department of Electrical Engineering at Princeton University, where he is currently an Associate Professor. His research focuses on advanced sensing systems, including low-voltage digital logic and SRAMs, low-noise analog instrumentation and data-conversion, large-area sensing systems based on flexible electronics, and low-energy algorithms for embedded inference, especially for medical applications. Prof. Verma is a Distinguished Lecturer of the IEEE Solid-State Circuits Society, and serves on the technical program committees for ISSCC, VLSI Symp., DATE, and IEEE Signal-Processing Society (DISPS). Prof. Verma is recipient or co-recipient of the 2006 DAC/ISSCC Student Design Contest Award, 2008 ISSCC Jack Kilby Paper Award, 2012 Alfred Rheinstein Junior Faculty Award, 2013 NSF CAREER Award, 2013 Intel Early Career Award, 2013 Walter C. Johnson Prize for Teaching Excellence, 2013 VLSI Symp. Best Student Paper Award, 2014 AFOSR Young Investigator Award, 2015 Princeton Engineering Council Excellence in Teaching Award, and 2015 IEEE Trans. CPMT Best Paper Award.

Upcoming Distinguished Lecturer Events in February

	SPEAKER	CHAPTER	TOPIC
February 2	Pieter Harpe	SSCS Austin	<p>Topic 1: "Ultra low-power analog front-end design"</p> <p>Topic 2: "Power-efficient, high-resolution and reconfigurable SAR ADCs"</p> <p>For more details, please click here.</p>
February 10	Marian Verhelst	SSCS Boston	<p>Topic: "Approximate hierarchical sensing and computing towards always-on-context awareness"</p> <p>For more details, please click here.</p>

For more information on upcoming Distinguished Lecturer Tours, [CLICK HERE.](#)

CONFERENCES

Upcoming Conferences/Call for Papers

2017 IEEE International Solid-State Circuits Conference (ISSCC)	February 5 - 9, 2017
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San Francisco	
<u>2017 Design, Automation & Test in Europe Conference & Exhibition (DATE)</u> Switzerland	March 27 - 31, 2017
<u>2017 International Symposium on VLSI Technology, Systems and Application (VLSI-TSA)</u> Taiwan	April 24 - 27, 2017
<u>2017 International Symposium on VLSI Design, Automation and Test (VLSI-DAT)</u> Taiwan	April 24 - 27, 2017
<u>2017 IEEE Custom Integrated Circuits Conference (CICC)</u> Texas	April 30 - May 3, 2017
<u>IEEE 2017 Wireless Power Transfer Conference (WPTC)</u> Taipei	May 10 - 12, 2017
<u>IEEE Radio Frequency Integrated Circuits Symposium (RFIC)</u> Honolulu	June 4 - 6, 2017
<u>2017 Symposia on VLSI Technology and Circuits</u> Kyoto	June 5 - 8, 2017
<u>2017 IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)</u> Taiwan	July 24 - 26, 2017
<u>2017 European Solid-State Circuits Conference (ESSCIRC)</u> Belgium	Sept 11 - 14, 2017

RFIC 2017 Schedule Summary

Date/Time	Saturday June 3	Sunday June 4	Monday June 5	Tuesday June 6
AM		RFIC Workshops	RFIC Technical Sessions	RFIC Technical Sessions
Lunch			5G Panel	Game/Quiz Panel
PM	Registration	RFIC Workshops	RFIC Technical Sessions /*5G Summit	*5G Summit
Evening		RFIC 5G Plenary RFIC Reception Joint Industry Showcase and Interactive Forum		*5G Executive Forum

*5G Summit is a separate conference that will offer complementary 5G overview presentations

RFIC 2017

The 2017 IEEE Radio Frequency Integrated Circuits (RFIC) Symposium (RFIC 2017) will be held in Honolulu, Hawaii during June 4-6, 2017. The RFIC Symposium is the premier IC design conference focused exclusively on the latest advances in RF, Microwave and Millimeter Wave integrated circuit (IC) technologies and designs, as well as innovations in

high frequency analog/mixed-signal ICs. We cordially invite you to participate in this international symposium.

The 2017 RFIC symposium will begin on Sunday, June 4, 2017, with sixteen RFIC focused workshops (ten full-day and 6 half-day), there will be several joint RFIC/IMS workshops on Sunday and Monday. These workshops cover a wide range of advanced topics in RFIC technology and IC design including 5G systems and beyond.

Following the full day of Sunday workshops, the RFIC Plenary Session will be held in the evening beginning with conference highlights, the presentation of the Student Paper Awards and the Industry Best Paper Award.

On Monday and Tuesday, the RFIC will have multiple tracks of oral technical paper sessions.

CALL FOR PAPERS

2017 IEEE Wireless Power Transfer Conference - Call for Papers

The 2017 IEEE Wireless Power Transfer Conference (WPTC) is a conference on wireless powering. The meeting is intended to cover a broad range of areas related to devices, integrated circuits, systems and applications of WPT across the electromagnetic spectrum. WPTC welcomes submissions of original work on:

- Technologies for wireless power transfer and energy harvesting
- Power transmitters and receivers for wireless power transfer and energy harvesting
- Integrated circuits and systems for wireless power transfer and energy harvesting
- Applications of wireless power transfer and energy harvesting
- Other device, system or application topics related to wireless power
- and other topics

Submission deadline: February 6, 2017

Click [here](#) for more details

2017 International Symposium on Low Power Electronics and Design - Call for Papers

The 2017 International Symposium on Low Power Electronics and Design (ISLPED) is the premier forum for the presentation of innovative research in all aspects of low power electronics and design, ranging from process technologies and analog/digital circuits, simulation and synthesis tools, system-level design and optimization, to system software and applications. ISLPED welcomes submissions of original work on the topics below and more. A full list of acceptable topics can be found [here](#).

- Technologies: Low-power technologies for device, interconnect, logic, memory, 2.5/3D
- Circuits: Low-power digital circuits for logic, memory, reliability, clocking, power gating
- Logic and Architecture: Low-power logic and microarchitecture for SoC designs, processor cores, cache
- CAD Tools and Methodologies: CAD tools and methodologies for low-power and thermal-aware design addressing power estimation, optimization, reliability and variation impact on power
- Systems and Platforms: Low-power, power-aware, and thermal-aware system design including data-center power delivery and cooling
- Software and Applications: energy-efficient, energy-aware, and thermal-aware software and application design
- Industrial Design Track: These papers have the same submission deadline as regular papers and should focus on similar topics, but are expected to provide a complementary perspective to academic research by focusing on challenges, solutions, and lessons learnt while implementing industrial-scale designs. Industrial design papers that focus on any of the topics mentioned [here](#) are welcome.

Abstract Submission Deadline: February 27, 2017

Click [here](#) for more details

2017 IEEE International Midwest Symposium on Circuits and Systems - Call for Papers

The 2017 IEEE International Midwest Symposium on Circuits and Systems is the oldest Circuits and Systems Symposium sponsored by IEEE. The 60th edition will be held on the campus of Tufts University, Boston, MA. MWCAS 2017 will include oral and poster sessions, student paper contest, and tutorials given by experts in circuits and systems topics, and special sessions. Suggested paper topics include, but are not limited to:

- Analog Circuits and Systems - Analog Circuits, Analog Systems, Biomedical Electronics, Bioengineering Systems, Linear Analog Systems, Non-Linear Analog Systems, System Architectures, Neuromorphic Systems.
- Digital Circuits and Systems - Digital Integrated Circuits, System On a Chip (SOC) and Network on a Chip (NOC), Digital Filters, Hardware-Software Co-Design.
- Communications Circuits and Systems - Communications Circuits, Computers, and Applications, Communications Systems and Control, Information Theory, Coding, and Security.
- RF and Wireless Circuits and Systems - RF Front-End Circuits, Mixed-Signal RF and Analog Baseline Circuits, Wireless Mobile Circuits and Systems and Connectivity, VCO's and Frequency Multipliers.
- Sensor Circuits and Systems - Technologies for Smart Sensors, Sensor Fusion, Control Systems, Mechatronics and Robotics.
- Converter Circuits and Systems - Analog to Digital Converters, Digital to Analog Converters, DC-DC Converters.
- Signal and Image Processing - Analog and Mixed Signal Processing, Digital Signal Processing, Signal Processing Theory and Methods, Image, Video, and Multi-Dimensional Signal Processing.
- Hardware Design - Processor and Memory Design, MEMS/NEMS, Nano-Electronics and Technology, Optics and Photonics, Power Management, Power Harvesting, and Power Electronics, Photovoltaic Devices/Panels and Physically Unclonable
- Hardware Security - Hardware Authentication and Physically Unclonable Functions (PUFs), Trusted Microelectronics, Hardware Anti-Tamper, Architectural System Security, Other Hardware Security.

A full list of suggested paper topics can be found [here](#).

Submission deadlines: March 18, 2017 for Tutorial/Special Session Proposals and Regular/Student Paper Submissions. April 1, 2017 for Special Session and Invited Paper Submissions.

Click [here](#) for more details

2017 ESSCIRC - Call for Papers

The European Solid-State Circuits Conference (ESSCIRC) welcomes the submission of papers. The conference will be held September 11- 14, 2017 in Leuven, Belgium. Manuscript guidelines as well as instructions on how to submit electronically can be found [here](#).

Papers should focus on the 2017 conference topics:

- Analog - OP-Amps and instrumentation amplifiers CT and DT filters; SC circuits, Comparators; Nonlinear circuits; Voltage and current references; HV circuits; Nonlinear analog circuits; Digitally assisted analog circuits
- Data Converters- Nyquist-rate and oversampling A/D and D/A converters; Sample-hold circuits; Time-to-digital converters; ADC and DAC calibration/error correction circuits.
- RF and mm-Wave - RF/IF building blocks like LNAs, mixers, power amplifiers, IF amplifiers; Power detectors; Subsystems for RF, mm-wave and THz design with focus on novel design techniques.
- Frequency Generation - Modulators/demodulators; VCOs; PLLs; DLLs; Frequency synthesizers; Frequency dividers; Integrated passive component.
- Wireless and Wireline Systems - Receivers/transmitters/transceivers for wireless/wireline systems Gigabit serial links; Clock and data recovery; Equalization; Advanced modulation systems; Base station and handset applications; TV/radio/satellite receivers and transmitters; Radars.
- Sensors, Imager and Biomedical - Sensor subsystems and interfaces; Accelerometers; Temperature sensing; Imaging and smart imaging chips; AMOLED; MEMs subsystems; RF

- MEMs, Implantable electronic ICs; Biomedical imagers; Bio-MEMs integrated systems; Lab-on-chip; Organic LED and liquid-crystal-display interface circuits; Flat panel and projection display.
- Digital, Security and Memory - Techniques for energy efficient and high performance digital circuits; I/O and inter-chip communication; Reconfigurable digital circuits; Security and encryption circuits; Clocking; Arithmetic building blocks; Memories; Microprocessors; DSPs; Memory interfacing; Bus interfacing; Many core and multirate ICs; 3D integration.
 - Power Management - Energy transducers; Power regulators; DC-DC converters; Energy-scavenging circuits; LDOs Boost-buck-converters; LED drivers; Sequencers and supervisors; Green circuit.

[Download the Call for Papers here.](#)

Submissions must be received by April 10, 2017

Click [here](#) for more details

NEWS

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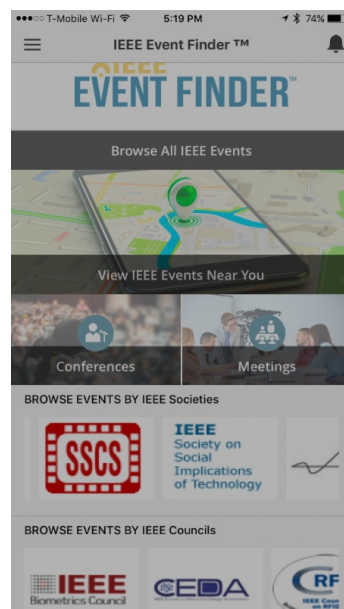
If you have not renewed your SSCS membership for 2016, you can enter the promotion code at checkout to join CAS for \$5 and start making the added connections you need to forward professionally. If you have already renewed for 2016, sign in with your IEEE account. The discounted CAS membership will be present in your cart.



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Seeking News

Please send any chapter news or happenings (Distinguished Lecturer visits, events hosted by your SSCS chapter, awards received by members, etc) to Abira Sengupta, SSCS Magazine News Editor, for inclusion in an upcoming issue of the magazine. Please email - Abira.Sengupta@ieee.org. We look forward to receiving your news articles!

For more chapter news, [check out](#) the Winter 2017 issue of the Solid-State Circuits Magazine.

FEEDBACK

Let us know what you think! Please [email us](#) to send us your comments about the newsletter, what you would like to see included each month, or any other comments.

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