

# DL Ali Sheikholeslami Visits the IEEE SSCS Japan Chapter

On 17 May 2018, the IEEE Solid-State Circuits Society (SSCS) Japan Chapter held a technical seminar at the University of Tokyo, Japan. Distinguished Lecturer (DL) Prof. Ali Sheikholeslami, University of Toronto, Canada, gave a lecture about jitter in data converters

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and wireline circuits. Thirty-five people attended the seminar, including 12 IEEE Members. In his lecture, Sheikholeslami talked about the basis of the jitter and its impact on representative circuit building blocks, such as voltage-controlled oscillators, digital-to-analog converters, analog-to-digital converters, and clock and data recovery (CDR). He also touched upon new

techniques to evaluate jitter transfer or jitter tolerance in CDR systems. The audience learned a great deal from this excellent and insightful talk. After the lecture, audience members had a deep discussion with Sheikholeslami about the content of his presentation.

—Tetsuya Iizuka  
Secretary, IEEE SSCS Japan Chapter



The attendees of the DL program.

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# IEEE SSCS Tunisia Chapter Hosts a Distinguished Lecture by Prof. Jerald Yoo

The IEEE Solid-State Circuits Society (SSCS) Tunisia Chapter invited IEEE SSCS Distinguished Lecturer Prof. Jerald Yoo, Department of Electrical and Computer Engineering, National University of Singapore, to deliver his talk “On-Chip Epilepsy Detection: Where Machine Learning Meets Patient-Specific Wearable Healthcare.” The presentation attracted a wide range of attendees, including people from industry and academia and physicians working on epilepsy detection and treatment solutions.

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The audience members listen intently to Prof. Yoo's talk.



Prof. Yoo discussed on-chip epilepsy detection.

Yoo presented current techniques for seizure and epilepsy detection and treatments that are not generally effective in infants and children. Seizure patterns vary depending on the age of the patient as well as the individual patient themselves,

which makes it particularly challenging to detect the patterns. Yoo emphasized that current techniques are still under development, especially for children.

After the talk, Yoo interacted closely with audience members and answered

questions. In particular, he spent time talking to several Ph.D. students and their professors who are working on subject matter similar to that presented in his talk.

—Brahim Mezghani

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## Vivienne Sze Visits San Diego to Present on Deep-Learning Hardware

On 10 April 2018, the IEEE Solid-State Circuits Society (SSCS) Distinguished Lecturer Vivienne Sze, from the Massachusetts Institute of Technology, Cambridge, delivered the presentation “Energy-Efficient Deep Learning: Challenges and Opportunities” in San Diego, California. The event was organized by the SSCS webinar program and local IEEE SSCS Chapter (run by Tony Babaian and Jeff Shi). The afternoon seminar was hosted by Qualcomm to a crowd of 120 attendees and approximately 450 remote attendees. The comprehensive and holistic overview of this ever-so-trendy topic offered intuition for both novice and expert attendees, covering basic concepts, state-of-the-art research directions, and perspectives of what’s

important for the field to progress.

Sze attributes the explosion of deep learning to the coincident availability of big data, graphics processing unit acceleration, and new machine learning techniques. She used adaptive image filtering for pattern recognition to explain basic concepts of deep neural networks (DNN). The talk then covered the underlying matrix computations and their limitations to motivate the development of specialized hardware architectures, energy-efficient data flows, joint algorithm hardware design approaches, and advanced technologies. Sze concluded



Vivienne Sze

with a discussion of DNN hardware benchmark metrics, such as accuracy, energy, throughput, and cost, and the importance of balancing these metrics.

This seminar will be broadcast as an SSCS webinar at a future date, an event not to be missed. Sze will take live questions immediately after the webinar. Please visit [http://](http://eyeriss.mit.edu)

[eyeriss.mit.edu](http://eyeriss.mit.edu) for more information on Sze’s research and tutorial material on DNN architectures. Special thanks to Isabelle Garcia of Qualcomm for all her assistance with the seminar logistics.

—Alvin Loke

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