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Deep Neural Networks, Advanced CMOS Image Sensors To Accelerate Progress For Future Connected Society

Neural architectures for machine learning and continuing evolution of imaging systems highlight plenary sessions that open 2016 Symposium on VLSI Circuits...

| HONOLULU, HI (MAY [18](#), 2016) – Rapid progress in developing deep neural networks and the evolution of stacked CMOS imaging sensors have brought applications once considered impossible, such as real-time translation and self-driving vehicles, closer to reality. The integration of these technology trends are the subjects of two plenary presentations that kick off the 2016 Symposia on VLSI Technology & Circuits, a premiere international conference on semiconductor technology that defines the pace, progress and evolution of microelectronics, scheduled from June 13-17, 2016 in Honolulu, Hawaii.

The Symposia's overall theme, "**Inflections for a Smart Society**," is reflected in the opening plenary sessions entitled "**Enabling Future Progress in Machine Learning**," by Olivier Temam, Google, Inc., followed by a presentation on "**Accelerating the Sensing World Through Imaging Evolution**," by Tetsuo Nomoto, Sony Semiconductor Solutions Corporation's vice president and senior general manager.

The plenary presentations are scheduled for Wednesday morning, June 15, as part of the Symposia program to provide an opportunity for industry experts to share new challenges and recent advances on subjects related to VLSI circuits.

Presented by Google's Olivier Temam, the first plenary session will discuss the significant role that deep neural network development will play in advancing the progress of future computer systems. Recent advances in machine learning, driven by rapid increases in computing performance, have made possible larger neural networks and training sets.

"The slowing rate of geometric scaling in standard CMOS technology and the need for faster progress in machine learning capability suggests the need to explore alternative approaches," observes Temam. "Applying the lessons learned from prior research on neural architecture may enable us to overcome the hurdles faced at the circuit level in the near future."

Tetsuo Nomoto, Sony's VP and senior general manager, will present a plenary session detailing the evolution of CMOS imaging sensor (CIS) technology and the future prospect of a connected society with "anywhere, anytime, anything" sensing capabilities. CIS technology now dominates the market for digital still cameras, outperforming predecessor systems with lower power

consumption, better signal-to-noise ratio, and higher frame rate through the use of back-illuminated architecture and column-parallel ADCs.

“Stacked CIS technology has enhanced the functionality and user experience in mobile devices – a market that comprises more than one billion sensors annually,” said Nomoto. “Future CIS advancements promise to accelerate the progress of sensing with continuous improvement of image quality, extended detectable wavelengths and enhancements to depth and temporal resolution.”

More information about the Symposia plenary sessions is available here:

<http://vlsisymposium.org/plenary-rump-sessions/>

The annual Symposia on VLSI Technology & Circuits will be held at the Hilton Hawaiian Village, Honolulu, Hawaii from June 13-16, 2016 (Technology) and June 14-17, 2016 (Circuits). Held together since 1987, the Symposia provide a unique opportunity for the world’s top device technologists, circuit and system designers to exchange leading edge research on microelectronics technology, with alternating venues between Hawaii and Japan.

Sponsoring Organizations

The Symposium on VLSI Technology is sponsored by the IEEE Electron Devices Society and the Japan Society of Applied Physics, in cooperation with the IEEE Solid State Circuits Society.

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Further Information, Registration and Program Details

Visit: <http://www.vlsisymposium.org>.

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