



# ISSCC 2020 Awards

February 17, 2020





### 2019 Lewis Winner Award for Outstanding Paper

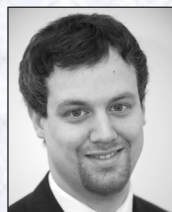
“A 3.2GS/s 10 ENOB 61mW Ringamp ADC in 16nm with Background Monitoring of Distortion”



Benjamin Hershberg



Davide Dermit



Barend van Liempd



Ewout Martens



Nereo Markulic



Jorge Lagos



Jan Craninckx

imec, Leuven, Belgium

### 2019 Lewis Winner Award for Outstanding Paper

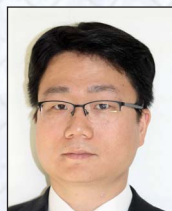
“A Scalable 71-to-76GHz 64-Element Phased-Array Transceiver Module with 2x2 Direct-Conversion IC in 22nm FinFET CMOS Technology”



Stefano Pellerano<sup>1</sup>



Steven Callender<sup>1</sup>



Woorim Shin<sup>1</sup>



Yanjie Wang<sup>2</sup>



Somnath Kundu<sup>1</sup>



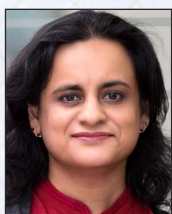
Abhishek Agrawal<sup>1</sup>



Peter Sagazio<sup>1</sup>



Brent Carlton<sup>1</sup>



Farhana Sheikh<sup>1</sup>



Arnaud Amadjikpe<sup>1</sup>



William Lambert<sup>3</sup>



Divya Shree Vemparala<sup>1</sup>



Mark Chakravorti<sup>1</sup>



Satoshi Suzuki<sup>1</sup>



Robert Flory<sup>1</sup>



Chris Hull<sup>1</sup>

<sup>1</sup>Intel, Hillsboro, OR, <sup>2</sup>Hillsboro, OR, <sup>3</sup>Intel, Chandler, AZ

#### The Lewis Winner Award for Outstanding Paper

Lewis Winner served ISSCC for three decades (1958 to 1988) as Editor, Publisher, and Conference Coordinator. He was responsible, in considerable part, for establishing and maintaining the high standards of ISSCC publications and presentations. The Award in his honour is based on ratings by Conference attendees in the previous year.

## 2019 Anantha P. Chandrakasan Award for Outstanding Distinguished-Technical-Paper

### “A 769 $\mu$ W Battery-Powered Single-Chip SoC with BLE for Multi-Modal Vital Sign Health Patches”



Mario Konijnenburg<sup>1</sup>



Roland van Wegberg<sup>1</sup>



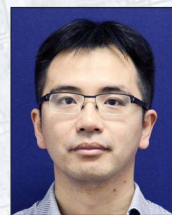
Shuang Song<sup>2</sup>



Hyunsoo Ha<sup>1</sup>



Wim Sijbers<sup>2</sup>



Jiawei Xu<sup>1</sup>



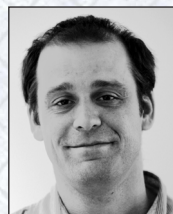
Stefano Stanzione<sup>1</sup>



Chris van Liempd<sup>1</sup>



Dwaipayan Biswas<sup>2</sup>



Arjan Breeschoten<sup>1</sup>



Peter Vis<sup>1</sup>



Chris Van Hoof<sup>1,2,3</sup>



Nick Van Helleputte<sup>2</sup>

<sup>1</sup>imec - Netherlands, Eindhoven, The Netherlands, <sup>2</sup>imec, Leuven, Belgium, <sup>3</sup>KU Leuven, Heverlee, Belgium

#### Anantha P. Chandrakasan Award for Outstanding Distinguished-Technical Paper

This Award is based on ITPC ratings at paper selection, as normalized at paper presentation time by members of the Awards & Recognition Committee (ARC). This year, in recognition of the many decades of contribution by Anantha Chandrakasan and his retirement as Conference Chair, this Award has now been renamed in his honor.

## 2019 Jan Van Vessel Award for Outstanding European Paper

### “A 256 $\times$ 256 40nm/90nm CMOS 3D-Stacked 120dB Dynamic-Range Reconfigurable Time-Resolved SPAD Imager”



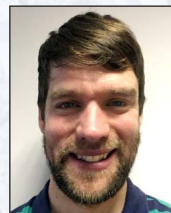
Robert K. Henderson<sup>1</sup>



Nick Johnston<sup>1</sup>



Sam W. Hutchings<sup>1</sup>



Istvan Gyongy<sup>1</sup>



Tarek Al Abbas<sup>1</sup>



Neale Dutton<sup>2</sup>



Max Tyler<sup>3</sup>



Susan Chan<sup>3</sup>



Jonathan Leach<sup>3</sup>

<sup>1</sup>University of Edinburgh, Edinburgh, United Kingdom, <sup>2</sup>STMicroelectronics, Edinburgh, United Kingdom  
<sup>3</sup>Heriot-Watt University, Edinburgh, United Kingdom

#### The Jan Van Vessel Award for Outstanding European Paper

Jan Van Vessel served ISSCC as the first Chair of the European Program Committee from 1968 to 1974. The Award in his honour is based on ratings by Conference attendees in the previous year.

**2019 Takuo Sugano Award for Outstanding Far-East Paper**  
“Background Capacitor-Current-Sensor Calibration of DC-DC Buck Converter with DVS for Accurately Accelerating Load-Transient Response”



Tai-Haur Kuo



Yi-Wei Huang



Pai-Yi Wang

National Cheng Kung University, Tainan, Taiwan

**The Takuo Sugano Award for Outstanding Far-East Paper**

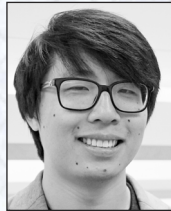
Takuo Sugano served ISSCC as an early member of what became the Far-East Program Committee, from 1967 to 1989. The Award in his honour is based on ratings by Conference attendees in the previous year.

**2019 Jack Kilby Award for Outstanding Student Paper**

“A 10mW 16b 15MS/s Two-Step SAR ADC with 95dB DR Using Dual-Deadzone Ring-Amplifier”



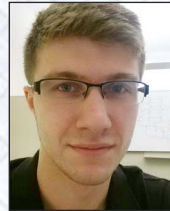
Ahmed ElShater<sup>1</sup>



Calvin Yoji Lee<sup>1</sup>



Praveen Kumar Venkatachala<sup>1</sup>



Jason Muhlestein<sup>1</sup>



Spencer Leuenberger<sup>1</sup>



Kazuki Sobue<sup>2</sup>



Koichi Hamashita<sup>2</sup>



Un-Ku Moon<sup>1</sup>

<sup>1</sup>Oregon State University, Corvallis, OR, <sup>2</sup>Asahi Kasei Microdevices, Atsugi, Japan

**The Jack Kilby Award for Outstanding Student Paper**

Jack Kilby, an integrated-circuits pioneer responsible for designing the first monolithic IC, was a long-term ISSCC participant and contributor. The Award in his honour is based on ratings by Conference attendees in the previous year.

**2019 ISSCC Award for Outstanding Forum Presenter**  
“LiDAR Sensor Systems”



Ming Wu  
UC Berkeley, Berkeley, CA

**The Outstanding Forum-Presenter Award**

This Award is based on Forum-attendee ratings from the previous year.

## 2019 ISSCC Award for Outstanding Forum Presenter “Clock Generation and Distribution for 56Gb/s, 112Gb/s and Beyond Serial Links”



**Didem Turker Melek**  
Xilinx, San Jose, CA

**The Outstanding Forum-Presenter Award**  
This Award is based on Forum-attendee ratings from the previous year.

## 2019 Evening Session Award “Moving to the Dark Side”

**Organizer**



**Jan Westra**  
Broadcom  
Bunnik, The Netherlands

**Organizer/Moderator**



**Matt Straayer**  
Maxim  
North Chelmsford, MA

### Panelists



**Dave Dwelley**  
Maxim Integrated  
San Jose, CA



**Kavé Kianush**  
Catena  
Delft, The Netherlands



**Curtis Ling**  
MaxLinear  
Carlsbad, CA



**Jen Lloyd**  
Analog Devices  
San Jose, CA



**Tyson Tuttle**  
Silicon Labs  
Austin, TX



**Patrick Yue**  
Hong Kong University of  
Science and Technology,  
Hong Kong

### Special Appearances



**Laura Fujino**  
University of Toronto  
Canada



**Chris Mangelsdorf**  
Analog Devices  
San Diego, CA



**Bram Nauta**  
University of Twente, Enschede  
The Netherlands

**The Evening-Session Award**  
This Award is based on Conference-attendee ratings from the previous year.

**2019 Demonstration Session Certificate of Recognition**  
**“A Scalable 71-to-76GHz 64-Element Phased-Array Transceiver Module  
with 2x2 Direct-Conversion IC in 22nm FinFET CMOS Technology”**



**Stefano Pellerano<sup>1</sup>**



**Steven Callender<sup>1</sup>**



**Woorim Shin<sup>1</sup>**



**Yanjie Wang<sup>2</sup>**



**Somnath Kundu<sup>1</sup>**



**Abhishek Agrawal<sup>1</sup>**



**Peter Sagazio<sup>1</sup>**



**Brent Carlton<sup>1</sup>**



**Farhana Sheikh<sup>1</sup>**



**Arnaud Amadjikpe<sup>1</sup>**



**William Lambert<sup>3</sup>**



**Divya Shree  
Vemparala<sup>1</sup>**



**Mark Chakravorti<sup>1</sup>**



**Satoshi Suzuki<sup>1</sup>**



**Robert Flory<sup>1</sup>**



**Chris Hull<sup>1</sup>**

<sup>1</sup>Intel, Hillsboro, OR, <sup>2</sup>Hillsboro, OR, <sup>3</sup>Intel, Chandler, AZ

**2019 Demonstration Session Certificate of Recognition**

**“AI x Robotics: Technology Challenges and Opportunities in Sensors, Actuators, and Integrated Circuits”**



**Masahiro Fujita**

Sony, Tokyo, Japan

**Demonstration-Session Award**

This Award is based on ratings provided by the Demo-Session Committee from the previous year.

**2019 Demonstration Session Certificate of Recognition**  
**“An 80Gb/s 300GHz-Band Single-Chip CMOS Transceiver”**



**Sangyeop Lee<sup>1</sup>**

with:  
Ruibing Dong<sup>1</sup>, Takeshi Yoshida<sup>1</sup>, Shuhei Amakawa<sup>1</sup>,  
Shinsuke Hara<sup>2</sup>, Akifumi Kasamatsu<sup>2</sup>,  
Junji Sato<sup>3</sup>, Minoru Fujishima<sup>1</sup>

<sup>1</sup>Hiroshima University, Higashihiroshima, Japan, <sup>2</sup>National Institute of Information and Communications Technology, Koganei, Japan  
<sup>3</sup>Panasonic, Yokohama, Japan

**2019 Demonstration Session Certificate of Recognition**  
**“LNPU: A 25.3TFLOPS/W Sparse Deep-Neural-Network Learning Processor  
with Fine-Grained Mixed Precision of FP8-FP16”**

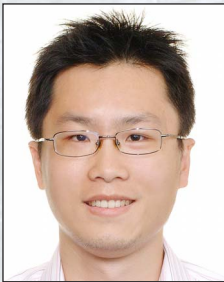


**Jinsu Lee**

with:  
Juhyoung Lee, Donghyeon Han, Jinmook Lee,  
Gwangtae Park, Hoi-Jun Yoo

KAIST, Daejeon, Korea

**2019 Demonstration Session Certificate of Recognition**  
**“A 680 $\mu$ W Burst-Chirp UWB Radar Transceiver for Vital Signs and Occupancy Sensing up to 15m Distance”**



**Yao-Hong Liu<sup>1</sup>**



**Sunil Sheelavant<sup>1,2</sup>**



**Marco Mercuri<sup>1</sup>**

with:  
Paul Mateman<sup>1</sup>, Johan Dijkhuis<sup>1</sup>, Wilfried Zomagboguelou<sup>1,3</sup>,  
Arjan Breeschoten<sup>1</sup>, Stefano Traferro<sup>1</sup>, Yan Zhan<sup>1</sup>, Tom Torf<sup>4</sup>,  
Christian Bachmann<sup>1</sup>, Pieter Harpe<sup>3</sup>, Masoud Babaie<sup>2</sup>

<sup>1</sup>imec-Netherlands, Eindhoven, The Netherlands, <sup>2</sup>Delft University of Technology, Delft, The Netherlands  
<sup>3</sup>TU Eindhoven, Eindhoven, The Netherlands, <sup>4</sup>imec, Leuven, Belgium

**Demonstration-Session Award**

This Award is based on ratings provided by the Demo-Session Committee from the previous year.



# Solid-State Circuits Society Awards

## 2018 Journal of Solid-State Circuits Best Paper Award “A 6.9- $\mu\text{m}$ Pixel-Pitch Back-Illuminated Global Shutter CMOS Image Sensor With Pixel- Parallel 14-Bit Subthreshold ADC”



Masaki Sakakibara<sup>1</sup>



Koji Ogawa<sup>1</sup>



Shin Sakai<sup>1</sup>



Yasuhisa Tochigi<sup>1</sup>



Katsumi Honda<sup>1</sup>



Hidekazu Kikuchi<sup>1</sup>



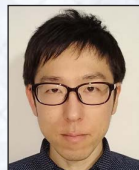
Takuya Wada<sup>1</sup>



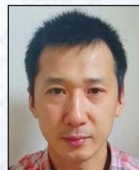
Yasunobu Kamikubo<sup>1</sup>



Tsukasa Miura<sup>1</sup>



Masahiko Nakamizo<sup>1</sup>



Naoki Jyo<sup>2</sup>



Ryo Hayashibara<sup>2</sup>



Shinya Miyata<sup>1</sup>



Satoshi Yamamoto<sup>1</sup>



Yoshiyuki Ota<sup>1</sup>



Hirotugu Takahashi<sup>1</sup>



Tadayuki Taura<sup>1</sup>



Yusuke Oike<sup>1</sup>



Keiji Tatani<sup>1</sup>



Takayuki Ezaki<sup>1</sup>



Teruo Hirayama<sup>1</sup>

<sup>1</sup>Sony Semiconductor Solutions, Atsugi, Japan, <sup>2</sup>Sony Semiconductor Manufacturing, Kumamoto, Japan



# IEEE

## Technical Field Awards

## 2020 IEEE Donald O. Pederson Award in Solid-State Circuits



Klaas Bult

Delft University of Technology, The Netherlands

*“For leadership in embedded analog and mixed-signal integrated circuits”*

The IEEE annually recognizes outstanding contributors worldwide to the art and science of electro- and information technologies with technical awards in 3 dozen technical specialties. The IEEE Donald O. Pederson Award for Solid-State Circuits for outstanding contributions in the field of solid-state circuits goes to an individual or team of not more than three. The award includes a bronze medal, certificate, and cash honorarium which are presented at the ISSCC.





**IEEE**

**Technical Field Awards**

**2020 IEEE Frederik Philips Award**



**Kazuo Yano**  
Hitachi, Tokyo, Japan

*"For leadership in the development and materialization of human-centric IoT technology in the electronics industry"*



**Solid-State Circuits Society  
Awards**

**2020 IEEE Brokaw Award for Circuit Elegance**



**Matthias Eberlein**  
Apple, Munich, Germany / Johannes Kepler University, Linz, Austria

This Award was created to enhance appreciation and encourage innovation of simple, smart, and elegant circuit design. The award is presented in recognition of a unique, innovative, simple, smart, and elegant circuit design, created during the past decade that has demonstrated its viability.



## Solid-State Circuits Society Awards

### 2020 IEEE Solid-State Circuits Society New Frontier Award



**Nan Sun**

University of Texas at Austin, Austin, TX

The IEEE SCS New Frontier award recognizes and honors SCS members in their early career who are exploring innovative and visionary technical work within the field of solid-state circuits. The award aims to emphasize pioneering developments that are at the frontiers of IC design or possess an imminent potential to expand the field through new categories of circuit technologies, system design, and/or emerging applications.

### 2020 IEEE Solid-State Circuits Society Innovative Education Award



**Peter R. Kinget**

Columbia University, New York, NY

The IEEE SCS Innovative Education Award recognizes and honors SCS members in their early/mid-career, who are making significant contributions to education in the field of solid-state circuits using innovative approaches. The award aims to highlight distinguished and unique educational methods or programs that have a broad impact on the education of our community.

### 2020 IEEE Solid-State Circuits Society Industry Impact Award



**Vivek De**

Intel

The IEEE SCS Industry Impact Award recognizes and honors SCS members who have had a seminal impact and made distinctive contributions to the field of solid-state circuits and the integrated circuits industry. The award recognizes extraordinary accomplishments in entrepreneurship, leadership and/or technical excellence that led to significant breakthroughs and paradigm shifts in the IC business, thereby enabling new products and services within the ten year period prior to the application deadline.



## 2020 Fellows



**William Bidermann**

*for leadership in commercially successful image sensors and microprocessors*



**Eric A. M. Klumperink**

*for contributions to thermal noise cancelling and software defined radio architecture*



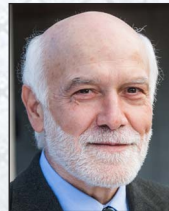
**Jae-sung Rieh**

*for contributions to silicon-germanium integrated circuits for wireless communications*



**Ramon Carvajal**

*for contributions to low-voltage and low-power CMOS analog circuit design*



**Yiannos Manoli**

*for contributions to the design of integrated analog-to-digital interface circuits and energy harvesting systems*



**Ravi Todi**

*for contributions to innovative design and commercialization of high performance eDRAM*



**Barbara De Salvo**

*for contributions to device physics of nonvolatile embedded and stand-alone memories*



**Bich-yen Nguyen**

*for contributions to silicon on insulator technology*



**Huazhong Yang**

*for low-power circuit techniques for sensor applications and design automation*



**Jose De La Rosa**

*for contributions to delta-sigma modulators*



**Michael Perrott**

*for contributions to phase-locked loop integrated circuits*



**Masoud Zargari**

*for contributions to the development of CMOS radio-frequency integrated circuits*



**Pavan Kumar Hanumolu**

*for contributions to the design of mixed-signal integrated circuits*



**Ullrich Pfeiffer**

*for development of silicon-based millimeter-wave and terahertz circuits and systems*



# Solid-State Circuits Society Awards

## 2019 Solid-State Circuits Society Outstanding Chapter Award



**Andrea Baschirotto**  
Chapter Chair

### IEEE SSCS Italy Chapter

Note that all ISSCC Awards are scrutinized and vetted by a special group, the Awards and Recognition Committee (ARC) whose current members are:

Kenneth (KC) Smith, Chair (University of Toronto)  
Bryan Ackland (Old Bridge, NJ)  
Anantha Chandrakasan (Massachusetts Institute of Technology)  
Nicky Lu (Etron)  
Willy Sansen (K.U. Leuven), Member-at-Large  
Bruce Wooley (Stanford University)