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IEEE NorCAS 2020, October 27-28, 2020 – virtual from Oslo, Norway

Final Programme

Times in Central European Time CET (GMT+1)!!!

Tuesday October 27

12:00 **Opening** (*Jari Nurmi*)

12:20 **Keynote 1** (*Chair: Jari Nurmi*)

Compressive sensing (CS) Circuits and Systems for Intelligent Biomedical Signal Processing

An-Yeu (Andy) Wu, National Taiwan University, Taiwan

13:20 **Plenary 1** (*Chair: Dag T. Wisland*)

13:20 HyVE: A Hybrid Voting-based Eviction Policy for Caches.....1

Akshay Srivatsa, Sebastian Nagel, Nael Fafous, Nguyen Anh Vu Doan, Thomas Wild, Andreas Herkersdorf, Technical University of Munich, Germany

13:40 Multi-threshold voltage and dynamic body biasing techniques for energy efficient ultra low voltage subthreshold adders.....8

Somayeh Zadeh, Trond Ytterdal, Snorre Aunet, NTNU, Norway

14:00 Break

14:20 – 16:00 Parallel sessions

14:20 **Data Converters** (*Chair: Atila Alvandpour*)

14:20 A 10b 1GS/s Inverter-Based Pipeline ADC in 65nm CMOS.....14

Timmy Sundström¹, Javad Bagheri Asli², Christer Svensson², Atila Alvandpour²

1) SAAB AB Linköping, Sweden; 2) Linköping University, Sweden

14:40 A 10-bit 3.75-GS/s Binary-Weighted DAC with 58.6-pJ Energy Consumption in 65-nm CMOS.....18

Oscar Morales¹, Jacob Wikner¹, Atila Alvandpour¹, Litter Siek²

1) Linköping University, Sweden; 2) Nanyang Technological University, Singapore

15:00 Digital Timing Error Calibration of Time-Interleaved ADC with Low Sample Rate.....22

Marko Neitola, University of Oulu, Finland

14:20 **Scheduling, Approximation and Error Resilience** (*Chair: Peeter Ellervee*)

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Cornelia Wulf, Michael Willig, Diana Göhringer, Technische Universität Dresden, Germany

14:40 Model-Based Design Space Exploration for Approximate Image Processing on FPGA.....36

Manu Manuel¹, Arne Kreddig², Simon Conrady³, Nguyen Anh Vu Doan¹, Walter Stechele¹ 1)

Technical University of Munich, Germany; 2) SmartRay GmbH, Germany;

3) Arnold & Richter Cine Technik, Germany

15:00 Novel Lockstep-based Approach with Roll-back and Roll-forward Recovery to Mitigate Radiation-Induced Soft Errors.....43

Server Kasap, Eduardo Weber Wächter, Xiaojun Zhai, Shoaib Ehsan, Klaus D. McDonald-Maier, University of Essex, United Kingdom

- 15:20 **Amplifiers** (Chair: Ivan Jørgensen)
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Luis Henrique Rodvalho, Federal University of Santa Catarina, Brazil
- 15:40** On the Design of a CMOS-integrated Load Modulated Balanced Amplifier.....56
Ted Johansson, Srivatsa Samji, Linköping University, Sweden
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- 15:20** A FPGA-based Hardware Accelerator for Bayesian Confidence Propagation Neural Network.....60
Lizheng Liu^{1,2}, Deyu Wang¹, Yuning Wang¹, Anders Lansner², Ahmed Hemani², Yu Yang², Xiaoming Hu², Zhuo Zou¹, Lirong Zheng¹
1) Fudan University, Shanghai, China;
2) Royal Institute of Technology (KTH), Stockholm, Sweden
- 15:40** A Parallel and Pipelined Implementation of a Pascal-Simplex Based Two Asset Option Pricer on FPGA using OpenCL.....66
Aidan O Mahony¹, Gil Zeidan², Bernard Hanzon¹, Emanuel Popovici¹
1) University College Cork, Ireland; 2) Intel Corporation, Massachusetts, USA
- 16:00 Break
- 16:20 **Keynote 2** (Chair: Jari Nurmi)
- Approximate Computing: Test and Reliability issues and opportunities**
- Alberto Bosio, INL-ECL, France**
- 17:20 End of day 1

Wednesday October 28

- 12:00 **Keynote 3** (Chair: Dag T. Wisland)
- Future Human: Merging Minds and Machines**
- Tim Constandinou, Imperial College, UK**
- 13:00 **Plenary 2** (Chair: Dag T. Wisland)
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Siyu Tan¹, Mattias Palm², Daniele Mastantuono², Roland Strandberg², Lars Sundström², Sven Mattisson^{1,2}, Pietro Andreani¹
1) Department of Electrical and Information Technology, Lund University, Lund, Sweden;
2) Ericsson Research, Lund, Sweden
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Erwin Habibzadeh Tonekabony Shad¹, Tania Moeinfard², Marta Molinas¹, Trond Ytterdal¹
1) NTNU, Norway; 2) York, Canada
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1) Integrated Circuit & System Lab, Department of ECE, National Institute of Technology Arunachal Pradesh, Yupia 791112, India;
2) Department of Nanoscience and Engineering, Centre for Nano Manufacturing, Inje University, Gimhae 50834, Korea;
3) Packaging Research Center, Georgia Institute of Technology, Atlanta, GA 30332, USA
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Shashank Awasthi¹, Saurav Sharma², Sanjeev Kumar Metya¹, Alak Majumder¹
1) National Institute of Technology Arunachal Pradesh;
2) Galgotias College of Engineering & Technology Greater Noida

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Technische Universität Dresden, Germany
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Negar Shabanzadeh¹, Mahmoud Shehab², Rehman Akbar¹, Aarno Pärssinen¹, Timo Rahkonen¹
1) University of Oulu, Finland; 2) Nokia Oyj

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1) Centre for Wireless Communications, University of Oulu; 2) Vaasa University of Applied Science, Finland; 3) A'Sharqiyah University, Oman

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1) University Bundeswehr; 2) Fraunhofer Research Institution for Microsystems and Solid State Technologies EMFT, Munich, Germany

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1) Department of Electronic Systems Engineering of the School of Engineering (USP), São Paulo, Brazil;

2) Federal Institute of Education, Science and Technology (IFSP), São Paulo, Brazil

15:40 **Network-on-Chip** (Chair: Peeter Ellervee)

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Technical University of Munich, Germany

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1) Universidade de Brasilia, Brazil; 2) Karlsruhe Institute of Technology (KIT); 3) Universidade de Brasilia, Brazil; 4) Universidade de Brasilia, Brazil; 5) Karlsruhe Institute of Technology (KIT)

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Ameer M.S. Abdelhadi, University of Toronto, Canada

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Software-Defined Radio Education and the Next Generation of Wireless Communications Innovators

Alexander Wyglinsky, Worcester Polytechnic Institute, MA, USA

17:40 **Awards and Closing** (Chair: Jari Nurmi)