

# DATE Best Paper Awards

Each year the Design, Automation and Test in Europe Conference presents awards to the authors of the best papers. The selection is performed by the award committee composed of the Track Chairs Franco Fummi, Ian O'Connor, Cristiana Bolchini and Valeria Bertacco and the following members: Philip Brisk, Andrea Calimera, Suhaib Fahmy, Frédéric Mallet, Ingo Sander, Ayse Kivilcim Coskun, Pascal Vivet, Jaume Abella, Georges Gielen, Tulika Mitra, Graziano Pravadelli, Dirk Ziegenbein.

The **DATE 2019** best papers are:

## D Track

### **Enhancing Reliability of STT-MRAM Caches by Eliminating Read Disturbance Accumulation**

*Elham Cheshmikhani<sup>1</sup>, Hamed Farbeh<sup>2</sup>, Hossein Asadi<sup>1</sup>*

1 Sharif University of Technology, 2 Amirkabir University of Technology

## A Track

### **When Capacitors Attack: Formal Method Driven Design and Detection of Charge-Domain Trojans**

*Xiaolong Guo<sup>1</sup>, Huifeng Zhu<sup>2</sup>, Yier Jin<sup>1</sup>, Xuan Zhang<sup>2</sup>*

1 University of Florida, 2 Washington University in St. Louis

## T Track

### **Error-Shielded Register Renaming Subsystem for a Dynamically Scheduled Out-of-Order Core**

*Ron Gabor<sup>1</sup>, Yiannakis Sazeides<sup>2</sup>, Arkady Bramnik<sup>1</sup>, Alexandros Andreou<sup>2</sup>,  
Chrysostomos Nicopoulos<sup>2</sup>, Yanfeng Li<sup>2</sup>, Karyofyllis Patsidis<sup>3</sup>,  
Dimitris Konstantinou<sup>3</sup>, Giorgos Dimitrakopoulos*

1 Intel, 2 University of Cyprus, 3 Democritus University of Thrace

## E Track

### **Data Subsetting: A Data-Centric Approach to Approximate Computing**

*Younghoon Kim<sup>1</sup>, Swagath Venkataramani<sup>2</sup>, Nitin Chandrachoodan<sup>3</sup>, Anand Raghunathan<sup>1</sup>*

1 Purdue University, 2 IBM T. J. Watson Research Center,  
3 Indian Institute of Technology Madras

# Best Paper Award Nominations

## D Track

HotR: Alleviating Read/Write Interference with Hot Read Data Replication for Flash Storage

*Suzhen Wu, Weiwei Zhang, Bo Mao*

Xiamen University

High-performance, Energy-efficient, Fault-tolerant Network-on-Chip Design  
using Reinforcement Learning

*Ke Wang<sup>1</sup>, Ahmed Louri<sup>1</sup>, Avinash Karanth<sup>2</sup>, Razvan Bunescu<sup>2</sup>*

1 George Washington University, 2 Ohio University

fbPDR: In-depth combination of forward and backward analysis  
in Property Directed Reachability

*Tobias Seufert, Christoph Scholl*

University Freiburg

CoDAPT: A Concurrent Data And Power Transceiver for Fully Wireless 3D-ICs

*Benjamin Fletcher<sup>1</sup>, Shidhartha Das<sup>2</sup>, Terrence Mark<sup>1</sup>*

1 University of Southampton, 2 ARM Ltd.

Automated Activation of Multiple Targets in RTL Models using Concolic Testing

*Yangdi Liu, Alif Ahmed, Prabhat Mishra*

University of Florida

PINT: Polynomial in Temperature Decode Weights in a Neuromorphic Architecture

*Scott Reid, Antonio Montoya, Kwabena Boahen*

Stanford University

IR-aware Power Net Routing for Multi-Voltage Mixed-Signal Design

*Shuo-Hui Wang, Yen-Yu Su, Guan-Hong Liou, Mark Po-Hung Lin*

National Chung Cheng University

Improving the DRAM Access Efficiency for Matrix Multiplication on Multicore Accelerators

*Sheng Ma, Yang Guo, Shenggang Chen, Libo Huang, Zhiying Wang*

National University of Defense Technology

“Unobserved Corner” Prediction: Reducing Timing Analysis Effort  
for Faster Design Convergence in Advanced-Node Design

*Andrew Kahng, Uday Mallappa, Lawrence Saul, Shangyuan Tong*

University of California San Diego

Enhancing Reliability of STT-MRAM Caches by Eliminating Read Disturbance Accumulation

*Elham Cheshmikhani<sup>1</sup>, Hamed Farbeh<sup>2</sup>, Hossein Asadi<sup>1</sup>*

1 Sharif University of Technology, 2 Amirkabir University of Technology

KC2: Key-Condition Crunching for Fast Sequential Circuit Deobfuscation

*Kaveh Shamsi<sup>1</sup>, Meng Li<sup>2</sup>, David Z. Pan<sup>2</sup>, Yier Jin<sup>1</sup>*

1 University of Florida, 2 University of Texas, Austin

NeuADC: Neural Network-Inspired RRAM-Based Synthesizable Analog-to-Digital Conversion  
with Reconfigurable Quantization Support

*Weidong Cao, Xin He, Ayan Chakrabarti, Xuan Zhang*

Washington University in St Louis

## A Track

Laelaps: An Energy-Efficient Seizure Detection Algorithm  
from Long-term Human iEEG Recordings without False Alarms

*Alessio Burrello<sup>1</sup>, Lukas Cavigelli<sup>1</sup>, Kaspar Schindler<sup>2</sup>, Luca Benini<sup>1</sup>, Abbas Rahimi<sup>1</sup>*

1 ETH Zurich, 2 University Bern

Block-Flushing: A Block-based Washing Algorithm for Programmable Microfluidic Devices

*Yu-Huei Lin<sup>1</sup>, Tsung-Yi Ho<sup>1</sup>, Bing Li<sup>2</sup>, Ulf Schlichtmann<sup>2</sup>*

1 National Tsing Hua University, 2 Technical University of Munich

When Capacitors Attack: Formal Method Driven Design  
and Detection of Charge-Domain Trojans

*Xiaolong Guo<sup>1</sup>, Huifeng Zhu<sup>2</sup>, Yier Jin<sup>1</sup>, Xuan Zhang<sup>2</sup>*

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## T Track

New method for the automated massive characterization of  
Bias Temperature Instability in CMOS transistors

*Pablo Saraza-Canflanca<sup>1</sup>, Javier Diaz-Fortuny<sup>2</sup>, Rafael Castro-Lopez<sup>1</sup>, Elisenda Roca<sup>1</sup>, Javier  
Martin-Martinez<sup>2</sup>, Rosana Rodriguez<sup>2</sup>, Montserrat Nafria<sup>2</sup>, Francisco Vidal Fernandez<sup>2</sup>*

1 Universidad de Sevilla, 2 Universidad Autonoma de Barcelona

Error-Shielded Register Renaming Subsystem for a Dynamically Scheduled Out-of-Order Core

*Ron Gabor<sup>1</sup>, Yiannakis Sazeides<sup>2</sup>, Arkady Bramnik<sup>1</sup>, Alexandros Andreou<sup>2</sup>,  
Chrysostomos Nicopoulos<sup>2</sup>, Yanfeng Li<sup>2</sup>, Karyofyllis Patsidis<sup>3</sup>,*

*Dimitris Konstantinou<sup>3</sup>, Giorgos Dimitrakopoulos<sup>3</sup>*

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## E Track

Better Late Than Never Verification of Embedded Systems After Deployment

*Martin Ring<sup>1</sup>, Fritjof Bornebusch<sup>1</sup>, Christoph Lüth<sup>2</sup>, Robert Wille<sup>3</sup>, Rolf Drechsler<sup>2</sup>*

1 DFKI, 2 DFKI and University of Bremen, 3 Johannes Kepler University Linz

Data Subsetting: A Data-Centric Approach to Approximate Computing

*Younghoon Kim<sup>1</sup>, Swagath Venkataramani<sup>2</sup>, Nitin Chandrachoodan<sup>3</sup>, Anand Raghunathan<sup>1</sup>*

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Exploiting System Dynamics for Resource-Efficient Automotive CPS Design

*Leslie Maldonado<sup>1</sup>, Wanli Chang<sup>2</sup>, Debayan Roy<sup>3</sup>, Anuradha Annaswamy<sup>1</sup>,*

*Dip Goswami<sup>4</sup>, Samarjit Chakraborty<sup>3</sup>*

1 Massachusetts Institute of Technology, 2 University of York,

3 Technical University of Munich, 4 Eindhoven University of Technology

Self-Supervised Quantization of Pre-Trained Neural Networks for Multiplierless Acceleration

*Sebastian Vogel<sup>1</sup>, Jannik Springer<sup>1</sup>, Andre Guntoro<sup>1</sup>, Gerd Ascheid<sup>2</sup>*

1 Robert Bosch GmbH, 2 RWTH Aachen University