

# From the EIC

## Machine Intelligence at the Edge



■ **IN THIS ISSUE**, we cover machine learning approaches for deployment at the edge. It is a continuation of a series of special issues that started more than five years ago when the magazine began to cover “systems of systems.”

Many existing machine learning models are optimized toward server and/or cloud computing, which leaves a gap for edge computing. This crucial gap is covered by this special issue that presents highly selected research work in the field balancing ML models, hardware architectures, programming tools, and design methodologies for ML at the edge. I would like to thank the Guest Editors, Luca Benini, Deming Chen, Jinjun Xiong, and Zhiru Zhang, for conducting this special issue. Their survey, “Enabling Design Methodologies and Future Trends for Edge AI: Specialization and Codelign,” serves as an introduction to the topic.

In addition, we have, in this issue, the enhanced versions of the best articles of SBCCI, an almost regular special section that covers the design and test work from Latin America. I want to thank the Guest Editors, Marcelo Lubaszewski and Matteo Sonza Reorda, for their efforts.

The General Interest section contains three articles. In “Framework for Load Power Consumption in HANs Using Machine Learning and IoT Assistance,” Manimuthu and Dharshini present an approach to a monitoring framework to protect the home area

network against damage and to optimize power consumption. “Split-Chip Design to Prevent IP Reverse Engineering,” by Pagliarini et al., deals with the problem where a chip design is distributed across potentially untrusted foundries and shows solutions for IP theft, hardware Trojan horse, and so on. Finally, in “Detecting and Scoring Equipment Faults in Real Time During Semiconductor Test Processes,” Wu et al. present an approach to detect collective anomalies in a design to increase robustness of testing.

The ACM/IEEE Design Automation and Test Conference (DATE) took place on February 1–5, 2021. Thanks to the Chairs, Franco Fummi and Ian O’Connor, for the report on the virtual event. Thanks to our Reports editor Massimo Poncino for acquiring this report.

Many thanks to Scott Davidson for The Last Byte titled “Being Learned.” Please also note the Call for Nominations for the position of the Editor-in-Chief (EiC) of *IEEE Design&Test* as my second and last term as the EiC ends this year.

I hope you enjoy reading this issue of *IEEE Design&Test*. ■

Jörg Henkel  
Editor-in-Chief  
*IEEE Design&Test*

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