

From the EIC

Embedded Intelligence in the Internet-of-Things



■ **ALTHOUGH EMBEDDED** intelligence in the Internet-of-Things (IoT) is not a sharply defined application scenario, IoT certainly often brings together many design constraints such as low power consumption, low communication overhead (since hundreds, thousands, or even millions of devices may be connected), and low costs (so very cheap devices can connect). The scalability of the IoT seems directly related to an efficient management scheme that is able to learn. Therefore, unlike hardly anywhere else, IoT systems can greatly benefit from embedded intelligence. We are, therefore, very glad to present you this special issue that is guest edited by Robert P. Dick, Li Shang, Marilyn Wolf, and Shao-Wen Yang. The special issue comes with four selected technical articles and a survey by the guest editors on the topic of embedded intelligence in the IoT.

A highlight of this issue is the Keynote article by Massoud Pedram and Luhao Wang titled “Energy Efficiency in 5G Cellular Network Systems.” This work focuses on the energy efficiency of 5G network: although data transfer is very high, carbon footprint

is an increasing concern. The work sheds light on the issue of how such contradictory constraints can be solved, mainly from the resource allocation and power management point of view.

The General Interest section also includes a Tutorial by Xiaoming Chen *et al.* titled “The Impact of Ferroelectric FETs on Digital and Analog Circuits and Architectures,” which describes the technological impact of ferro-FETs on architectures.

The 2019 Embedded Systems Week (ESWEEK) took place in New York City on October 13–18. Petru Eles and Tulika Mitra, the ESWeek General Chair and General Vice Chair, respectively, provide a report on this most prominent conference in the embedded systems field. Special thanks to Massimo Poncino, our Reports Editor, for managing to acquire this report.

Thanks to Theo Theocharides for the TTTC newsletter.

Last but not least, many thanks to Scott Davidson for the Last Byte article titled “Big Data, Big Faults.”

I wish you all a successful and creative year 2020! ■

Jörg Henkel
Editor-in-Chief
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