The Design and implementation of Devices, Circuits, and Systems Series features articles on telecommunication devices, circuits, and systems advances and developments. Numerous industrial sectors such as healthcare, automotive, energy, agriculture, smart manufacturing, consumer electronics, smart city, VR/AR/hologram, drone, and consumer electronics are becoming increasingly more dependent on information and communication technology solutions.

Entering the year 2020, this is the third appearance of the Series, featuring four articles that cover timely topics on the design and implementation of components and systems.

With more papers submitted to the Series, we anticipate more frequent appearances to approximately once every four months. We aim to attract more quality papers from academics, industry leaders, and designers for the next appearance that cover communication devices, circuits, and systems. These articles are aimed at providing practical knowledge for developing and optimizing communication products and services with an academically rigorous style and are also suitable for industry professionals. One of the key features of these articles is to conclude with “lessons learned,” which contains important lessons from the design and implementation process and the key takeaways.

The first article, by Siljak et al., provides a tutorial on the design of reversible hardware for acoustic communications which opens up new horizons in the implementation methodologies in quantum computing by using time reversing waves with a time reversal hardware architecture that aims at optimizing emergency efficiency.

The article “High Performance Implementation of Reconfigurable Load Balancing Engine on FPGA” by Zhao et al. discusses a load balancing implementation technique in task distribution. The main contribution is reducing delay when compared to most software-based implementation solutions. This article describes an implementation scheme of a reconfigurable load balancing engine on FPGA that features an evaluation of the delay induced by the balancing algorithm. The proposed implementation supports dynamic configuration that caters to different application scenarios.

The article by De Oliveira Filho et al., “Toward Self-Powered Internet of Underwater Things Devices,” provides a tutorial on the concept of simultaneous lightwave information and power transfer (SLIPT) for underwater IoT applications across the time, power, and space domains.

This last article in this issue, by Wu et al., “Critical Internet of Things: An Interworking Solution to Improve Service Reliability,” discusses service reliability enhancements in the IoT context for applications that require fast responses and high resilience. It provides insights into IoT system optimization through critical IoT implementation.

Prospective authors are strongly encouraged to contact the Series Editors prior to submitting an article in order to ensure that the article will be appropriate for the Series.

Biographies

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