DESIGN AND IMPLEMENTATION OF DEVICES, CIRCUITS, AND SYSTEMS

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Communication systems continue to experience an increase in the size and complexity of hardware designs for various applications. The aim of the Design and Implementation of Devices, Circuits, and Systems Series is to present and highlight the technological advancements, issues, challenges, and requirements for emerging communications from the perspective of the design and implementation of hardware designs. Original articles on diverse issues related to advancements and developments in telecommunication devices, circuits, and systems are published in this Series. The field of information and communication technology (ICT) has advanced significantly over the past few decades, particularly in the areas of effective communications and sustainable technologies. This January issue features three articles that cover the design and implementation of circuits and systems for effective communications, energy-efficient applications, and a sustainable future.

The first article, "Design and Implementation of a Flexible Neuromorphic Computing System for Affective Communication via Memristive Circuits," presents existing challenges in neuromorphic computing and provides a solution for effective communications from the devices, circuits, and systems perspective. This article explores the effective integration of nanotechnology, energy-efficient integrated circuits, and neuromorphic computing systems for communication applications.

The next article, "Low-Power Circuits and Energy-Aware Protocols for Connecting Batteryless Sensors," discusses the key features, challenges, and current solutions in transiently powered communication while introducing an intermittent communication protocol for transiently powered batteryless devices. The article also highlights the importance of exchanging batteryless node energy status information to determine the transmitting node's energy level and enable energy-aware data packet transmission across transiently operated IoT devices.

The last article, "An Embedded Crowdsensing Unit for Mobile Urban Pollution Monitoring," presents a platform in the context of smart city to enable a wide range of services for sustainable development to encourage mobility in terms of communications capabilities and functionality. This article describes a mobile crowdsensing solution powered by an embedded onboard unit design that collects environmental data for mobility, pollution control services, and communication capabilities.

The Series welcomes contributions from various industrial sectors such as healthcare, automotive, energy, agriculture, smart manufacturing, consumer electronics, smart city, VR/AR/hologram, drone, consumer electronics, microwave and RF design for communication systems, and others. Prospective authors interested in submitting an article are strongly encouraged to discuss their intended contribution with any of the Series Editors prior to submitting an article in order to ensure that the article is appropriate for the Series. 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.

BIOGRAPHIES

MOHAMMAD A. MATIN [SM] is a professor in the Department of Electrical and Computer Engineering at North South University, where he has been since 2008. He received his B.Sc. degree in EEE from BUET, Bangladesh, his M.Sc. degree in digital communication from Loughborough University, United Kingdom, and his Ph.D. in wireless communication from Newcastle University, United Kingdom. He has published over 120 peer-reviewed journal and conference papers. He is the author/editor of 17 academic books and 21 book chapters. He serves as a member of the Editorial Boards for several international publications including *IEEE Communications Magazine* and *IET Wireless Sensor Systems*. He has received a number of prizes and scholarships including the Best Student Prize (Loughborough University), Commonwealth Scholarship, and Overseas Research Scholarship conferred by the Committee of Vice Chancellors and Principals in the United Kingdom.

VYASA SAI [SM] is a senior hardware engineer in the Accelerated Computing Systems and Graphics Group (AXG) at Intel, California. He received his Ph.D. in computer engineering from University of Pittsburgh, Pennsylvania, in 2013. He also holds M.S. and B.Tech. degrees in ECE from the United States and India, respectively. He has authored/edited books, published numerous international peer-reviewed articles, and holds several U.S. patents in the field of electronics and communications. He is the lead Series Editor for the Design and Implementation of Devices, Circuits, and Systems Series for *IEEE Communication Magazine*. He also serves as a Technical Committee member for the IEEE Circuits and Systems for Communications, Editorial Board member for the *International Journal of RFID Technology & Applications* and Associate Editor for *IEEE Access*, among others. His research contributions have won him many international recognitions that include AIM's 2018 Williams award and the 2020 Sheth International Achievement award, among others.