Special Issue

Analog and Mixed-Signal Electronics and Microsystems for Ubiquitous Sensing and Intelligence

Message from the Guest Editors

The ability to sense, communicate, and harvest energy in a prevalent and continuous manner is fundamental to the next generation of artificial intelligence (AI), automotives, and medical devices. As the bridge between the physical and cyber worlds, analog mixed-signal (AMS) integrated circuits are a critical foundational technology. While micromachined sensors, transducers, and actuators provide the necessary conversion of signals and energy from one form to another, AMS circuits play the indispensable role of conditioning them with high precision and efficiency, which ultimately governs the proficiency of sensor systems. Furthermore, AMS computing is attracting growing attention as a new paradigm for deploying AI accelerators on the edge. This Special Issue focus on state-of-the-art AMS circuits and systems in the scope of smart sensor systems, covering topics of (1) ultra-low-power sensor readout circuits, sensor-driving circuits, and MEMS-CMOS codesigns; (2) high-efficiency solid-state and micromachined energy harvesting systems; (3) miniature medical instruments and imaging devices; and (4) energy-efficient AMS computing circuits.

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