Special Issue

AI-Enhanced Mixed-Signal Simulation and EDA for Integrated Circuit Design Using CMOS Technologies

Message from the Guest Editors

The relentless scaling of CMOS technologies and increasing demand for high-performance integrated circuits present formidable challenges in design complexity, verification time, and yield optimization. This Special Issue explores groundbreaking advances in artificial intelligence-driven electronic design automation (EDA) specifically tailored for RF and analog CMOS circuit design, with emphasis on mixed-signal simulation innovations. We seek contributions addressing the convergence of AI/ML techniques with traditional RF/analog CMOS design methodologies across the following three domains: (1) intelligent mixed-signal simulation frameworks that handle the unique challenges of RF/analog circuits in advanced CMOS nodes; (2) machine learning applications for automated synthesis, optimization, and verification of RF/analog building blocks, such as LNAs, VCOs, PLLs, and data converters; and (3) AI-native EDA solutions that transform conventional IC design flows through predictive modeling and intelligent automation.

Guest Editors

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Electronics is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guestedited by leading experts in selected topics of interest.

Editor-in-Chief

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