Non-linear Devices, Systems, Networks and Their Applications

Guest Editor:

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Message from the Guest Editor

Recent years have been characterized by resurged and increasing interest in the study of non-linear dynamics in engineered devices and systems. While traditionally treated as a hindrance to the synthesis of effective signal processing and control solutions, non-linear dynamics, including chaotic dynamics, deeply pervade nature, including physical, chemical and biological systems. They underpin self-organization and, in particular, the energy and volume-efficient solution of highly complex computational problems. Despite the relative paucity of analysis and synthesis tools in this area, the engineering community is increasingly looking at non-linear devices, systems and networks as elegant means of solving the challenges related, for example, to distributed computing and the internet-of-things. At the same time, the centrality of non-linear dynamics to all processes taking place in neural, and more generally physiological, systems has become unquestionable, with strong implications for the design of future biomedical and bio-inspired systems.

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