

Special Issue

Sensing Technologies and Optical Communication

Message from the Guest Editors

Significant advancements and recognition have been achieved in optical communications, attributed to its rapid transmission rates, minimal loss, extensive bandwidth capacity, immunity to electromagnetic interference, and suitability for long-distance transmission. These features make optical communications well-suited for Internet of Things (IoT) applications. In contrast to traditional electrical and electronic sensors, fiber sensors excel at performing consistent sensing operations even in challenging environments, rendering them promising solutions for emerging IoT applications. However, the adoption of fiber sensing technology in new domains presents unique challenges. Many emerging IoT applications demand attributes such as long-range sensing, high sensitivity, high fidelity, wide frequency response, multi-dimensional capabilities, cost-effectiveness, compactness, real-time sensing, detection, and measurement. Consequently, the integration of machine learning and AI algorithms becomes essential to extracting information from fiber sensing data and facilitating autonomous decision-making in real-time across various IoT applications.

Guest Editors

Dr. Isiaka A. Alimi

Instituto de Telecomunicações, Aveiro, 3810-193, Aveiro, Portugal

Dr. Paulo Pereira Monteiro

Instituto de Telecomunicações, University of Aveiro, 3810-193 Aveiro, Portugal

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Sensors
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
sensors@mdpi.com

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Editor-in-Chief

Prof. Dr. Vittorio M. N. Passaro

Department of Electrical and Information Engineering, Politecnico di Bari, Via Orabona 4, 70126 Bari, Italy

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