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Machine Learning for Dependable Edge Computing Systems and Services

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Message from the Guest Editors

Recent advances in machine learning (ML) techniques, particularly deep learning (DL), reinforcement learning, and federated learning, have successfully caused a huge number of breakthroughs in various application domains. Internet of Things (IoT) systems and applications consist of ubiquitously interconnecting devices (e.g., wireless sensors, wearable/mobile devices, cameras, smart tags, robots/UAVs, etc.). The urgent requirement of responsiveness and privacy led to Edge computing, a new paradigm that pushes the power of data analytics and computing capability to the edge of a network, closer to where the data are generated. Huge challenges exist in the design, implementation, deployment and maintenance of trustworthy and reliable Edge systems' infrastructures, algorithms, and applications. ML and DL technologies are well-suited and insightful for use in the provision automated data and resource management and offer advanced secure and robust malicious behaviour detection, thereby significantly improving the trusted intelligence and operational efficiency.