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| Nota di contenuto | Intelligent beam prediction and tracking -- Signal detection with machine learning -- AI-aided channel prediction -- Semantic communications -- Federated learning for wireless communications -- Federated learning in mesh networks -- Antenna design using artificial intelligence -- AI-driven approaches for solving electromagnetic inverse problems -- Reflectarray-based RIS-1 design using support vector machine to enhance mm-wave 5G coverage -- AI at the physical layer for wireless network security and privacy. |
| Sommario/riassunto | An exploration of connected intelligent edge, artificial intelligence, and machine learning for B5G/6G architecture Artificial Intelligence for Future Networks illuminates how artificial intelligence (AI) and machine learning (ML) influence the general architecture and improve the usability of future networks like B5G and 6G through increased system capacity, low latency, high reliability, greater spectrum efficiency, and support of massive internet of things (mIoT). The book reviews |

network design and management, offering an in-depth treatment of AI oriented future networks infrastructure. Providing up-to-date materials for AI empowered resource management and extensive discussion on energy-efficient communications, this book incorporates a thorough analysis of the recent advancement and potential applications of ML and AI in future networks. Each chapter is written by an expert at the forefront of AI and ML research, highlighting current design and engineering practices and emphasizing challenging issues related to future wireless applications. Some of the topics include: * Signal processing and detection, covering preprocess and level signals, transform signals and extract features, and training and deploying AI models and systems * Channel estimation and prediction, covering channel characteristics, modeling, and classic learning-aided and AI-aided estimation techniques * Resource allocation, covering resource allocation optimization and efficient power consumption for different computing paradigms such as Cloud, Edge, Fog, IoT, and MEC * Antenna design using AI, covering basics of antennas, EM simulator/optimization algorithms, and surrogate modeling Identifying technical roadblocks and sharing cutting-edge research on developing methodologies, Artificial Intelligence for Future Networks is an essential reference on the subject for professionals and researchers involved in the field of wireless communications and networks, along with graduate and PhD students in electrical and computer engineering programs of study.