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Nota di contenuto	Optimization Analysis of a Stand-Alone Hybrid Energy System for the Classroom at RLJIT-Doddaallapur, Southern part of India -- A Study of Internet of Things in Smart Grid and Smart Grid Security -- An Overview of Quantum Computing Approach in the Present-day Energy Systems -- Symbiotic Organisms Search Algorithm based Optimal Allocation and Sizing of Capacitor Bank in Radial Distribution Networks -- Optimization of the Mechanical Properties of Energy-Efficient Natural Fiber-Reinforced Polymeric Composites -- Extended State Observer based Controller Design Application in a 2-Link Robotic Manipulator -- Optimization of Energy and Exergy Analysis of 100W Solar Photovoltaic Module using ANN Method -- Obstructed Material Classification using mmWave Radar with Deep Neural Network for Industrial Applications -- Modeling and Simulation of Plain and Corrugated Shell and Tube Heat

Sommario/riassunto

This book discusses smart computing techniques which offer an effective solution for investigating and modeling the stochastic behavior of renewable energy generation, operation of grid-connected renewable energy systems, and smart decision-making among alternatives. It also discusses applications of soft computing techniques to make an intelligent decision for optimum use of suitable alternatives which gives an upper hand compared to conventional systems. It includes upgradation of the existing system by embedding of machine intelligence. The authors present combination of use of neural networks, fuzzy systems, and genetic algorithms which are illustrated in several applications including forecasting, security, verification, diagnostics of a specific fault, efficiency optimization, etc. Smart energy systems integrate a holistic approach in diverse sectors including electricity, thermal comfort, power industry, transportation. It allows affordable and sustainable solutions to solve the future energy demands with suitable alternatives. Thus, contributions regarding integration of the machine intelligence with the energy system, for efficient collection and effective utilization of the available energy sources, are useful for further advanced studies.