Energies

an Open Access Journal by MDPI

CiteScore: 7.3
Impact Factor: 3.2

Special Issue Reprint

Applied Neural Networks and Fuzzy Logic in Power Electronics, Motor Drives, Renewable Energy Systems and Smart Grids

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Artificial intelligence techniques, such as expert systems, fuzzy logic, and artificial neural network techniques have become efficient tools in modeling and control applications. For example, there are several benefits in optimizing cost-effectiveness, because fuzzy logic is a methodology for the handling of inexact, imprecise, qualitative, fuzzy, and verbal information systematically and rigorously. A neuro-fuzzy controller generates or tunes the rules or membership functions of a fuzzy controller with an artificial neural network approach. There are new instantaneous power theories that may address several challenges in power quality. So, this book presents different applications of artificial intelligence techniques in advanced high-tech electronics, such as applications in power electronics, motor drives, renewable energy systems and smart grids.

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