

1. Record Nr.	UNINA9910523713803321
Titolo	Artificial intelligence and heuristics for smart energy efficiency in smart cities : case study : Tipasa, Algeria // Mustapha Hatti, editor
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	9783030920388 9783030920371
Descrizione fisica	1 online resource (926 pages)
Collana	Lecture notes in networks and systems ; ; Volume 361
Disciplina	307.760285
Soggetti	Smart cities Artificial intelligence - Engineering applications Renewable energy sources
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Contents -- Smart Energy Efficiency -- For a Smarter and More Sustainable City: Tipasa with Its Potentialities -- 1 Introduction -- 2 Methodology -- 3 Results and Discussions -- 4 Conclusion -- References -- Elephant Herding Optimization Metaheuristic to Minimize Electricity Cost in a Smart House -- 1 Introduction -- 2 Related Work -- 3 The Problem Modeling -- 4 The Proposed Solution Modeling -- 5 Simulation and Results -- 6 Conclusion -- References -- Multi-Objective Optimization of Stand-Alone Hybrid Renewable Energy System for Rural Electrification in Algeria -- 1 Introduction -- 2 Hybrid System Components Modelling -- 2.1 Solar PV -- 2.2 Wind Turbine -- 2.3 Storage Battery -- 2.4 Diesel Generator -- 2.5 DC/AC Converter -- 3 Problem Formulation -- 3.1 Particle Swarm Optimization -- 3.2 Objective Function and Constraints -- 3.3 Constraints -- 4 Results and Discussion -- 4.1 System Data -- 4.2 Analysis -- 5 Conclusion -- References -- Prediction and Characterization of Cooling Load Energy Performance of Residential Building Machine Learning Algorithms -- 1 Introduction -- 2 Methodology -- 3 Simulation Results and Discussion -- 4 Conclusion -- References -- Prediction and Characterization of Heating Load Energy Performance of Residential Building Machine

Learning Algorithms -- 1 Introduction -- 2 Methodology -- 3
Simulation Results and Discussion -- 4 Conclusion -- References --
MPPT Based On Grey Wolf Optimization -- 1 Introduction -- 2 PV
Module -- 3 Direct Torque Control DTC -- 3.1 The Definition
of Primary Voltage Vectors -- 3.2 The Definition of Stator Flux Band
Electromagnetic Torque -- 4 MPPT By GWO -- 5 Tuning PI Gains By
Grey Wolf Optimization -- 6 Simulation Results -- 7 Conclusion --
References -- Optimal Power Flow Management of the Algerian Electric
Transmission System Using Moth Flame Optimizer Algorithm -- 1
Introduction.
2 Formulation of the Optimal Power Flow Problem -- 2.1 Objective
Functions -- 2.2 Constraints -- 3 Moth-Flame Optimization Algorithm
MFO -- 3.1 Creating the Initial Population of Moths -- 3.2 Updating
the Moths' Positions -- 3.3 Termination Criteria -- 4 Analysis
of the Algerian Electrical Transport Network -- 4.1 Power Flow Results
-- 4.2 Optimization Results -- 5 Conclusion -- References -- Wind
Energy Conversion System Controlled by Particle Swarm Optimization
Super Twisting Sliding Mode Control Equipped with Doubly Fed
Induction Generator -- 1 Introduction -- 2 WECS Modeling -- 2.1 Wind
Turbine Model -- 2.2 DFIG Model -- 2.3 Field Oriented Control of DFIG
-- 3 Proposed Control Strategy Concept -- 4 Wind Turbine STSMC -- 5
DFIG STSMC -- 5.1 Active Stator Power Control -- 5.2 Reactive Stator
Power Control -- 6 Overview of PSO Algorithm -- 7 Optimization
Problem Selection -- 8 Simulation Results -- 9 Conclusion --
References -- Optimization of Distributed Mean-Level CFAR Detectors
Using GA and PSO Algorithms -- 1 Introduction -- 2 Distributed GO-
CFAR and SO-CFAR Detectors -- 3 Evolutionary Algorithms -- 4
Results and Discussions -- 5 Conclusions -- References -- Optimal
Sizing Design of stand- Alone Hybrid System Using a Fuzzy PSO -- 1
Introduction -- 2 Pv Wind System Modeling and Sizing -- 2.1 PV Array
-- 2.2 Wind Turbine -- 2.3 Battery Bank -- 3 Technico-Economic
analysis -- 3.1 Objective Function -- 3.2 Constraints -- 4 Developed
Algorithm -- 5 Simulations Results -- 6 Conclusion -- References --
Optimal Location and Size of Shunt Capacitor in Distribution Using
Metaheuristic Method -- 1 Introduction -- 2 Mathematic Model -- 2.1
Fitness Function -- 2.2 Equality Constraints -- 2.3 Inequality
Constraints -- 2.4 Preserving Results Feasibility -- 3 Antlion Method --
3.1 Ant-Lion Optimization -- 4 Analyzes Results -- 5 Conclusion --
References.
Maximum Power Point Tracking of a Photovoltaic System Under Partial
Shading Condition Using Whale Optimization Algorithm -- 1
Introduction -- 2 PV System Model -- 2.1 PV Cell Modeling -- 2.2 The
Effects of Partial Shading -- 2.3 DC-DC Boost Converter -- 3 MPPT
Techniques -- 3.1 Maximum Power Point Tracking Description -- 3.2
Conventional P& O Method -- 3.3 Particle Swarm Optimization
-- 3.4 Constriction Coefficient Particle Swarm Optimization -- 3.5 The
Proposed Whale Optimization MPPT -- 4 Simulation Results
and Discussion -- 5 Conclusion -- References -- A Powerful Bio-
Inspired Fire Fly Algorithm Based MPPT Controller for PV Systems Under
Partial Shading Conditions -- 1 Introduction -- 2 Photovoltaic System
Characteristics Under Uniform and PS Conditions -- 3 Fire Fly
Algorithm: Basic Concepts and Applications -- 3.1 Basic Concepts --
3.2 Application of the Fire Fly Algorithm for the MPPT Control -- 4
Simulation Results and Discussion -- 4.1 Design Methodology
of the Proposed FFAMPPT Controller -- 5 Simulation of the Proposed
FFAMPPT Controller -- 6 Conclusion -- References -- An Efficient Salp
Swarm Algorithm for a PV Global Maximum Power Point Tracking Under
Partial Shading -- 1 Introduction -- 2 Photovoltaic Array Modelling --

2.1 PV Array Characteristics Under Partial Shading -- 3 Sarp Swarm Algorithm -- 4 Simulation Results and Discussions -- 4.1 Case of PSO and DPSO -- 4.2 Case of the Sarp Swarm Algorithm -- 5 Conclusion -- References -- Maximum Power Point Tracking Under Fast Changing Irradiance Using Hybrid Fuzzy-PO Algorithm -- 1 Introduction -- 2 Effect of Temperature and Irradiance -- 3 PV Cell Modelling -- 4 Maximum Power Point Algorithms -- 4.1 Perturb and Observe (PO) MPPT -- 4.2 Incremental Conductance (INC) MPPT -- 4.3 Fuzzy Logic Control (FLC) MPPT -- 5 System Description -- 6 Hybrid Fuzzy Logic Controller-PO Algorithm.

7 Simulation and Discussion -- 8 Conclusion -- References -- Assessment of Global Solar Energy Under All-Sky Condition Using Artificial Neural Network -- 1 Introduction -- 2 Material and Models -- 2.1 Study Areas and Data Collection -- 2.2 Artificial Neural Network (ANN) Models -- 3 Results and Discussion -- 4 Conclusion -- References -- Optimal Wind Turbine Site for Voltage Stability Improvement Using Genetic Algorithm Technique -- 1 Introduction -- 2 Mathematic Model -- 2.1 Fitness Function -- 3 Antlion Method -- 4 Analyzes Results -- 5 Conclusion -- References -- An Improved Energy Management System for Fuel Cell/ Ultra-capacitor Electric Vehicle Based Fuzzy Logic Control -- 1 Introduction -- 2 FCHEV Configuration and Calculations -- 2.1 Hybrid Power System -- 2.2 Fuel Cell Modeling -- 2.3 Supercapacitor Modeling -- 3 Energy Management Strategy Modelling and Simulation -- 4 Simulation Results and Discussion -- 5 Conclusion -- References -- Photovoltaic Energy Systems and Grid Connected -- PVsyst Sizing of a PV System for a Water Supply of an Agricultural Farm in an Isolated Area Using Pivot Technique -- 1 Introduction -- 2 Modeling and Simulation -- 3 Conclusion -- References -- The Effect of the Photovoltaic Sources Integration on the Dynamic Restructuration of the Algerian Electric Distribution Network -- 1 Introduction -- 2 Problem Formulation -- 2.1 Fitness Function -- 2.2 System Constraints -- 2.3 Preserving Results Feasibility -- 3 Antlion Method -- 4 Analyzes Results -- 5 Conclusion -- References -- Improving of Life Cycles of Renewable Energy Production Systems -- 1 Introduction -- 2 Life Cycles and CO₂ Emissions for Wind Farm -- 3 Life Cycle Energy Analysis of an Algerian Wind Farm -- 4 The Technical Identification of the Study Site -- 4.1 For Emissions Related to Manufacturing and Foundations -- 4.2 Transport Phase and Installation.

4.3 Maintenance Phase and Operations -- 4.4 End Life and Disposal -- 5 Results and Discussions -- 6 Conclusion -- References -- The Primary Frequency Control Techniques For Grid Connected PV Systems: A Review -- 1 Introduction -- 2 Impacts of PV on Power Grids and Frequency Control Phases -- 2.1 Impacts of PV on Power Grids -- 2.2 Frequency Control Phases -- 3 Techniques of Primary Frequency Control -- 3.1 Techniques Based on Energy Storage (with ESS) -- 3.2 Deloading Technique (without ESS) -- 4 Primary Frequency Control Using Artificial Intelligence (AI) Techniques -- 5 Conclusion -- References -- Modal Analysis of a Two Axis Photovoltaic Solar Tracker -- 1 Introduction -- 2 PV Solar Tracker Structure Description -- 3 Numerical Simulation -- 4 Resultants and Discussions -- 5 Conclusion -- References -- Multivariable Extremum Seeking MPPT Control for Photovoltaic Farm Connected to Utility Grid -- 1 Introduction -- 2 System Description -- 2.1 PV Farm -- 2.2 DC/DC Converter -- 2.3 DC/AC Converter -- 2.4 Load and AC Grid -- 3 Multivariable Extremum Seeking MPPT Control -- 3.1 The Sinusoidal Extremum Seeking Control -- 3.2 MPPT Based on Sinusoidal Extremum Seeking Control -- 4 Simulation Results -- 4.1 Performance of Generator Side -- 4.2

Performance in DC-Link -- 4.3 Performance of Grid Side -- 5
Conclusion -- References -- DPC-SVM Controlled Strategy for a Three-Level Shunt Active Power Filter Grid Connected Photovoltaic System Optimized by Super Twisting Sliding Mode Technique -- 1 Introduction -- 2 Systems Configurations -- 3 (DPC-SVM) Strategy -- 3.1 Active and Reactive Powers Calculation -- 3.2 DC Bus Control -- 3.3 ST-SMC MPPT -- 4 Simulation Result and Discussion -- 5 Conclusion -- References -- A New Modified Incremental Conductance Algorithm Used for PV System -- 1 Introduction -- 2 System Modeling -- 2.1 PV Modeling.
2.2 Buck-Boost Converter.
