

1. Record Nr.	UNINA9910731466503321
Autore	Kacprzyk Janusz
Titolo	International Conference on Advanced Intelligent Systems for Sustainable Development : Volume 4 - Advanced Intelligent Systems on Energy, Environment, and Industry 4.0 // edited by Janusz Kacprzyk, Mostafa Ezziyyani, Valentina Emilia Balas
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023
ISBN	3-031-35245-9
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (584 pages)
Collana	Lecture Notes in Networks and Systems, , 2367-3389 ; ; 714
Altri autori (Persone)	EzziyyaniMostafa BalasValentina Emilia
Disciplina	006.3
Soggetti	Computational intelligence Automatic control Robotics Automation Environmental sciences - Social aspects Computational Intelligence Control, Robotics, Automation Environmental Social Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Foreword -- Preface -- Organization -- Acknowledgement -- Contents -- Modeling Tool for the Design of Municipal Solid Waste Transportation Systems -- 1 Introduction -- 2 Methodology -- 2.1 Representation of the Transportation Trajectories -- 2.2 Optimization Objectives -- 3 Results and Discussions -- 3.1 Application Example -- 3.2 Results and Discussions -- 3.3 Sensitivity Analysis -- 4 Conclusions -- Appendix -- References -- Mathematical Modelling and Dynamic Simulation for Wastewater Treatment Plant Management: An Experimental Pilot Study -- 1 Introduction -- 2 Materials and Methods -- 2.1 WEST ® Program -- 2.2 Data Collection and Model Structure -- 2.3 Construction and Evaluation of the Model on WEST -- 3 Results and Discussion -- 3.1 Steady-State and Dynamic Experiment -- 3.2 Sensitivity Analysis -- 3.3 Model Calibration and Validation --

3.4 Model Calibration -- 3.5 Model Validation -- 4 Conclusions --
References -- Solar Flat Plate Collector (FPC) in Series with Evacuated
Tube Collector (ETC) in a Forced Circulation Water Heating Installations
Used in Buildings -- 1 Introduction -- 2 Methods -- 2.1 Examined Site
-- 2.2 System Description and Modeling -- 2.3 Performance Metrics --
3 Results and Discussion -- 4 Conclusion -- References -- Application
of Predictive Control to Multilevel Inverters Used in a WECS
for a Harmonics Minimization -- 1 Introduction -- 2 Multilevel Inverter
Model -- 2.1 Model of the 3 Phases 5 Level NPC Inverter -- 2.2
Command Strategy of the 3 Phases 5 Level NPC Inverter -- 3 Predictive
Control of the Multilevel Inverter -- 3.1 PWM Control of the 5 Level NPC
Inverter -- 3.2 Model Predictive Control of the 5 Level NPC Inverter -- 4
Simulation Results and Discussion -- 5 Conclusion -- References --
Study of a Simulator for the Diagnosis of Wind Farm Failures
and the Development of Maintenance Strategies.
1 Introduction -- 2 Component-Based Wind Farm Modeling -- 3
Diagnosis Based on Energy Balances -- 3.1 Power Curve -- 3.2 Energy
Balance of Components -- 4 Optimal Maintenance Strategies -- 5
Diagnosis of Faults Based on the Simulation of Energy Balances -- 6
Experiments -- 7 Conclusion -- References -- Industry 4.0
Technologies on Demand Driven Material Requirement Planning:
Theoretical Background and Impacts -- 1 Introduction -- 2 Theoretical
Background -- 2.1 Demand Driven MRP -- 2.2 Context of Industry 4.0
-- 3 Discussion -- 3.1 Impacts of Adopting Industry 4.0 in DDMRP --
3.2 The Benefits of Smart DDMRP -- 4 Conclusion -- References --
Effects of Slow Vehicles on Carbon Dioxide Emission in a Two-Lane
Cellular Automata Model -- 1 Introduction -- 2 Methodology -- 2.1
Carbon Dioxide Emission Model -- 3 Results and Discussion -- 3.1
Homogeneous Configuration -- 3.2 Inhomogeneous Configuration -- 4
Conclusion -- References -- CFD Modelling and Thermal Performance
Analysis of Ventilated Double Skin Roof Structure -- 1 Introduction --
2 Method -- 2.1 Model Description -- 2.2 CFD Modelling -- 3 Results
and Discussion -- 3.1 Thermo-Aeraulic Performance of the Roof -- 3.2
Heat Flux Through the Roof Structure -- 4 Conclusion -- References --
Literature Review of Energy Consumption Modeling for Mobile Devices
-- 1 Introduction -- 2 Backgrounds -- 3 Research Method -- 4
Discussions -- 4.1 Building the Energy Consumption Model -- 4.2
Detecting Energy Bugs -- 4.3 Optimized Code Structure with Energy-
Saving Practices -- 5 Conclusion -- References -- Density and Thermal
Properties of MWCNT/Glycerol Nanofluids -- 1 Introduction -- 2
Materials and Methods -- 3 Materials and Experimental Methods -- 3.1
Thermal Conductivity -- 3.2 Density of MWCNT/Glycerol Nanofluid -- 4
Conclusion -- References -- Rheological Properties of MWCNT/Glycerol
Nanofluids -- 1 Introduction.
2 Materials and Experimental Methods -- 3 Results and Discussion --
3.1 Dynamic Viscosity of Glycerol -- 3.2 Dynamic Viscosity
of the MWCNT/Glycerol Nanofluids -- 3.3 Rheological Behaviors
of Glycerol Based MWCNT Nanofluids -- 4 Conclusion -- References
-- Modeling and Control of a Photovoltaic Systems in Grid-Connected
AC Microgrid -- 1 Introduction -- 2 Structure and Modeling of
Photovoltaic System in Microgrid -- 2.1 Structure of Microgrid -- 2.2
Modeling of the Photovoltaic Array -- 3 Control of Microgrid -- 3.1
MPPT Control -- 3.2 Grid Synchronization -- 3.3 Grid Current Control
-- 3.4 DC Bus Voltage Control -- 4 Simulation Results -- 5 Conclusion
-- References -- Integral Sliding Mode Control of a DFIG Based Wind
Turbine Using PSO Algorithm -- 1 Introduction -- 2 Wind Energy
System Modeling -- 2.1 Wind Turbine Modeling -- 2.2 DFIG Modeling
-- 3 The Proposed Intelligent Control Method -- 3.1 Integral Sliding

Mode Control -- 3.2 Particle Swarm Optimization -- 4 Simulation Result and Discussion -- 5 Conclusion -- Appendix -- References -- Blade Profile Effect on the Impulse Radial Turbine Performances for OWC Wave Energy Converter -- 1 Introduction -- 2 Turbine Geometry -- 3 Numerical Modelling -- 3.1 Turbine Flow Conditions -- 3.2 CFD Model Validation -- 4 Results and Discussion -- 4.1 Turbines Overall Performances -- 4.2 Aerodynamic Losses Analysis -- 5 Conclusion -- References -- Active and Reactive Power Control for a Hybrid Microgrid Based on Doubly Fed Induction Generator and Hydrogen Fuel Cell Power Sources -- 1 Introduction -- 2 Microgrid's Modeling and Topology -- 3 Microgrid's Power Control -- 4 Simulation Results and Discussion -- 5 Conclusion -- References -- An Overview on Smart MicroGrids Managing Renewable Energies Resources in an Isolated Site -- 1 Introduction -- 2 Classifications of Smart-MicroGrids -- 2.1 AC MicroGrids. 2.2 DC MicroGrids -- 2.3 AC/DC MicroGrids -- 3 Stand-Alone MicroGrids Control -- 4 Smart-MicroGrids Energy Management System -- 5 Smart-MicroGrids Challenges and Opportuntes -- 6 Conclusion -- References -- Industrial Automation PLC Implementation of MPPT Using P&O Algorithm for PV System Applications -- 1 Introduction -- 2 System Description -- 2.1 PV Modeling Using Automation PLC -- 2.2 DC-DC Boost Converter Modeling Using Automation PLC -- 2.3 The Proposed P&O Algorithm Using Automation PLC -- 3 System Description -- 3.1 Rapidly Changing Irradiation Conditions -- 3.2 Rapidly Changing Temperature Conditions -- 4 Conclusion -- References -- A Review of Different Structures Generators and Control Strategies Applied to the Wind Turbine -- 1 Introduction -- 2 Wind Energy Conversion Systems -- 3 Generators and Topologies -- 3.1 Asynchronous Generators -- 3.2 Synchronous Generators -- 4 Maximum Power Point Tracking Controller for WECS -- 4.1 Conventional IPC- Based MPPT Algorithms for WECS -- 4.2 Conventional DPC Based MPPT Algorithms for WECS -- 5 Review Result and Discussion -- 5.1 Comparison of PMSG Versus Others Types Generators -- 5.2 MPPT Controllers Comparison -- 6 Conclusion -- References -- Fraud Detection in Supply Chain 4.0: A Machine Learning Model -- 1 Introduction -- 2 Financial Fraud in Supply Chain -- 3 Fraud Detection Model: A Machine Learning Approach -- 3.1 Proposed Methodology -- 3.2 Model Deployment -- 3.3 Performance Measurement -- 4 Results -- 5 Conclusion -- References -- Environmental Management and Environmental Performance: A Bibliometric Review Study and Visualization Analysis -- 1 Introduction -- 2 Environmental Management and Environmental Performance: A Brief Literature Review -- 3 Research Methodology and Initial Data Statistics -- 3.1 Importance of the Bibliometric Analysis. 3.2 Key Approach to Our Bibliometric Analysis -- 4 Results -- 4.1 Evolution of the Number of Research Works -- 4.2 Ranking of Results by Discipline -- 4.3 Ranking of Results by Country of Writing -- 4.4 Volume of Scientific Production in the Field -- 4.5 Co-occurrence Analysis -- 4.6 Cluster Analysis -- 5 Discussion -- 6 Conclusion -- Appendix -- References -- Intelligent Multisensors System, Temperature, Gas and Sound, Using Arduino -- 1 Introduction -- 2 Components and Software -- 2.1 Components -- 2.2 Softwars -- 3 Development of a Simulation Model and Prototype -- 3.1 Simulation Model -- 3.2 Creating a Prototype -- 3.3 Block Diagram -- 4 Results and Discussions -- 4.1 Temperature Measurements -- 4.2 Gas Detection -- 4.3 Sound Detection -- 4.4 Discussions -- 5 Conclusion -- References -- Model of a Hybrid Energy Storage System Using

Battery and Supercapacitor for Electric Vehicle -- 1 Introduction -- 1.1 Energy Hybridization -- 1.2 State of Charge (SOC) Indicators -- 1.3 Energy Recovery Management -- 2 Hybrid Energy Storage Systems -- 3 Studied System -- 4 Conclusion -- References -- Estimation of Port Air Emissions Inventory: The Case of Tanger Mediterranean Port Authority -- 1 Introduction -- 2 Material and Methods -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- Exemplarity of Public Administrations: An Important Lever for the Energy Efficiency of Buildings - Case of Morocco -- 1 Introduction -- 2 Exemplarity of the Administration - The Case of Morocco -- 3 Methodology -- 4 Results and Discussion -- 4.1 Results of Diagnosis -- 4.2 Recommendations -- 4.3 Analysis of Public Procurement -- 5 Conclusion -- References -- Offline Parameter Identification of the Battery Equivalent Circuit Model for Electric Vehicles Using Particle Swarm Optimization Method -- 1 Introduction -- 2 Method -- 2.1 Equivalent Circuit Model (ECM).
2.2 Particle Swarm Optimization (PSO).

Sommario/riassunto

This book describes the potential contributions of emerging technologies in different fields as well as the opportunities and challenges related to the integration of these technologies in the socio-economic sector. In this book, many latest technologies are addressed, particularly in the fields of computer science and engineering. The expected scientific papers covered state-of-the-art technologies, theoretical concepts, standards, product implementation, ongoing research projects, and innovative applications of Sustainable Development. This new technology highlights, the guiding principle of innovation for harnessing frontier technologies and taking full profit from the current technological revolution to reduce gaps that hold back truly inclusive and sustainable development. The fundamental and specific topics are Big Data Analytics, Wireless sensors, IoT, Geospatial technology, Engineering and Mechanization, Modeling Tools, Risk analytics, and preventive systems.
