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Nota di contenuto	Part One: Electrical Machines & Power converters -- 1. Improved Direct Torque Control of Dual Three Phase Permanent Magnet Synchronous Motor -- 2. The Impact of Fitness Functions for Optimal Tuning of PID Controller Applied to DC Motor -- 3. Feasibility of a Power and Control System for an Autonomous Photovoltaic Hot Plate Type Cooker (600 Wp) -- 4. Comparative Study of Proportional–Integral, Fuzzy Logic and Neural Fuzzy logic Controllers for Boost converter -- 5. Study and implementation of a single-phase H-bridge inverter and development of the MOSFET gate driver -- 6. A new SPWM approach for high-performance single-phase half-bridge inverters with pure sine wave --

7. Study and realization of a single-phase solar inverter with harmonics rejection -- 8. High power charger with d-q control and conventional buck converter for fast charging a city car -- 9. An Investigation of Overall Indices' Sensitivity in Detecting Voltage Collapse Proximity inPower Systems -- 10. Design of Switched Capacitor Based Interfacing Circuit for Lossy Capacitive Sensor in Power System Monitoring -- Part two:Control Systems & Automation -- 11. State-of-charge estimation of a lithium-ion battery in an electric vehicle using the XGBoost method -- 12. Evaluation of Charging Protocols for Lithium-ion Batteries Using Battery Equivalent Circuit Model -- 13. The Influence of PVTf on Machine Learning Estimation of IGBT Junction Temperature -- 14. Performing ANN fault tolerant control based Dynamic Voltage Restorer over a PV tied microgrid in accordance with the new Moroccan Grid Code requirements -- 15. Unmanned Aerial Vehicle Path Planning Algorithms for Very High Voltage Transmission Lines Inspection -- 16. Continuous Approximation of Stochastic Petri Nets: Adaptive maximal firing speeds -- 17. An electronic tool to differentiate between potatoes according to fertilization methods -- 18. Direct Fuzzy Logic controller Based on Sliding Mode for an Anti-Lock Braking System -- 19. Time-delay Sliding Mode Control of the Active Suspension System -- 20. A New Sliding Mode Control Based on Neural Networks for a Single-Rotor Helicopter -- 21. Numerical Simulation of Flow in an Axial Turbojet Engine for Avionics System Design -- Part three: Emerging Technologies and Applications -- 22. Machine Learning for Cloud and IoT-based Smart Agriculture -- 23. Toward Intelligent Navigation for Autonomous Mobile Robots: Learning from the classics -- 24. An outdoor navigation system dedicated to a Moroccan micro-tractor based on SLAM algorithms and multisensor fusion -- 25. Self-Driving Cars Perception Pedestrian Detection -- 26. Graphic processing unit acceleration of an electrocardiogram denoising process using a hybrid approach -- 27. Health Care Intelligent System: Deep Residual Network Powered by Data Augmentation for automatic Melanoma Image Classification -- 28. Intelligent Bearing Fault Diagnosis using Artificial Neural Networks and IoT for Maintenance 4.0 Implementation -- 29. Acoustic assessment of a composite material based on plaster and date palm spathes -- 30. Maximizing Performance of Light Emitting Diode Luminaires for Road Illumination -- 31. Intelligent control of electrical energy in a public lighting system by fuzzy logic method -- Part four: Advanced Wireless Communication and Antenna Technology -- 32. Design and analysis of antenna arrays operating at microwave frequencies for biomedical applications -- 33. Wearable Textile Antenna for Mobile Health and Telemedicine Systems -- 34. Mechanical Reconfiguration of Circular Patch Antenna using Metasurface for 5G Wireless Communication -- 35. Evaluation of the Exposition to ElectroMagnetics Field at 5G and 6G Frequencies -- 36. Multiclass AQM on TCP/IP routers: Modeling, analysis, and design -- 37. Design and Optimization of aSub-Threshold CMOS LDO Regulator with Improved Performance for IoT and Wearable Devices -- 38. Temperature-Compensated and Robust Bandgap Reference Voltage Circuit for High-Precision Sensors and Voltage regulators -- 39. Compact Design of SIW Resonator using Differential Evolution Algorithm -- 40. Improved approach to stabilize discrete-time delayed systems: controller for wind tunnels.

Sommario/riassunto

This edited book is an outcome of the selected papers presented at the International Conference on Electrical Systems & Automation, (ICESA 2023) held from 29 to 30 May 2023 at the Faculty of Sciences and Technologies, Al Hoceïma, Morocco. This edited book is divided into two volumes. This volume is divided into four parts, each devoted to

distinct yet interconnected aspects of the subject matter. The first part presents the control of electrical machines and power converters. It covers a comparative study of different control approaches, including Proportional-Integral (PI), Fuzzy Logic, and Neural Fuzzy Logic Controllers for Boost Converters. It also presents an innovative approach for single-phase half-bridge inverters and improved direct torque control of dual three-phase permanent magnet synchronous motors. Part 2 of the book, titled "Control Systems & Automation", thoroughly explores advanced control and automation technologies in electrical systems. These chapters collectively showcase the latest developments and research across various engineering domains. Several control approaches have been discussed such as fuzzy control, sliding mode control, artificial neural networks (ANN), and machine learning. The third part highlights emerging technologies and applications in various fields such as mobile robots, industry 4.0, agriculture, and health. The chapters cover a wide range of topics, including intelligent navigation for autonomous robots, self-driving car perception and pedestrian detection, machine learning for cloud and IoT-based smart agriculture, outdoor navigation systems for micro-tractors, healthcare intelligent systems for melanoma image classification, maximizing the performance of Light Emitting Diode Luminaires. The research explores innovative solutions and technologies in different domains, aiming to improve functionality in various applications. Part 4 of this book is dedicated to "Advanced Wireless Communication and Antenna Technology". This part explores cutting-edge developments and innovations in the realm of wireless communication and antenna design, with a focus on their applications and impact in various fields.