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Autore	Camarinha-Matos Luis M
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Nota di contenuto	-- AI in Business Applications. -- A Collaborative Approach to Last-Mile Logistics. -- Processes Classification Tool Development Based on BERT for Logistics Laboratory. -- An Access Control Method Against Unauthorized and Noncompliant Behaviors Leveraging Large Language Models. -- A Pattern-Based Approach to Data Privacy in Business Processes. -- AI in Industry 4.0. -- Large Language Models to Support Altruistic Collaborative Healing in Smart Manufacturing. -- Data Pre-processing of Hard Disk Drive Data for failure prediction in the context of Industry 4.0. -- Forecasting Power Demand in Complex Buildings Using Machine Learning: A Shopping Center Case Study. -- Smart Systems in Sustainable Development. -- Ensemble Deep Learning Model for AI-Powered Cyber-Physical Systems in Precision Agriculture. -- An Integrated Framework for the Development of a Multi-Sensor Node to Support Wildfire Management. -- Detection and

Characterization of Plume-Dominated Wildfires. -- AI-Powered Healthcare. -- Device Prototype for Kinematic and Electromyographic Analysis of the Upper Limb. -- Explainable Normative Modeling: Subcortical Changes in Frontotemporal Dementia Subtypes. -- User-Centered and Technical Requirements for Myoelectric Pediatric Arm Prosthesis Design: A Preliminary Study. -- Embedding Predecessor Information in Optimization of Genetic Algorithm (GA) based Blind Image Restoration. -- AI in Systems, Decision & Control. -- Deep Learning Models for GNSS-denied Target Navigation. -- Coarse-Grained Reconfigurable Arrays for High-Performance Low-Power Deep Neural Networks on Embedded Devices. -- Autonomous Vehicle Decision Making Through Multi- Grid Markov Decision Processes. -- High-Level Petri Nets for Modeling Cyber-Physical Multi-Agent Systems. -- Intelligent Sensing & Communication Systems. -- Electronic Noses for Cyber-Physical Systems: Preliminary Results on TiO<sub>2</sub> Thin Film as a Humidity Sensor. -- AI for Plasmonic Nanoparticles: a Tool to Improve the Colorimetric Detection of PoC Devices. -- A Low-Complexity Approach for Enhanced Wireless Performance Selective LIS. -- Improved Channel Estimation for LIS Systems Using Regularized RLS in SC-FDE Frameworks. -- Smart Power Systems. -- Detection and Mitigation Using PCA -Adaptive Sliding Mode Controller. -- Analytical Modeling and Simulation of a Superconducting Saturated Core Reactor. -- Control of a Multiphase Superconducting Axial Machine Drive for Electric Aircraft. -- Investigation of the Impact of Geometrical and Operational Parameters on AC Transport Losses in HTS Pancake Coils Using Extensive FEM Simulations and Regression Analysis: Insights into Design Acceleration. -- Electronic Systems. -- A Comprehensive Study of the Reference Voltage Buffer Design for CR- and CS-based SAR-ADCs. -- A Physically Unclonable Function Systematic Performance Analysis Methodology. -- Recent Trends in Audio Power Amplifiers for Battery-Powered Applications.

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### Sommario/riassunto

This book constitutes the refereed proceedings of the 16th IFIP WG 5.5 /SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems on Technological Innovation for AI-Powered Cyber-Physical Systems, DoCEIS 2025, held in Lisbon, Portugal, during July 2–4, 2025. The 29 full papers presented were carefully reviewed and selected from 60 submissions. They were focused on topical sections as follows: AI in Business Applications; AI in Industry 4.0; Smart Systems in Sustainable Development; AI-Powered Healthcare; AI in Systems, Decision & Control; Intelligent Sensing & Communication Systems; Smart Power Systems; Electronic Systems.

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