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Altri autori (Persone)	BeyererJürgen KrantzMaria KühnertChristian
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Soggetti	Cooperating objects (Computer systems) Computer engineering Computer networks Artificial intelligence Neural networks (Computer science) Cyber-Physical Systems Computer Engineering and Networks Artificial Intelligence Mathematical Models of Cognitive Processes and Neural Networks
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Nota di contenuto	Causal Structure Learning using PCMCI+ and Path Constraints from Wavelet-based Soft Interventions -- Reinforcement Learning from Human Feedback for Cyber-Physical Systems: On the Potential of Self-Supervised Pretraining -- Using ML-based Models in Simulation of CPPSs: A Case Study of Smart Meter Production -- Deploying machine learning in high pressure resin transfer molding and part post processing: a case study -- Development of a Robotic Bin Picking Approach based on Reinforcement Learning -- Control Reconfiguration of CPS via Online Identification using Sparse Regression (SINDYc) -- Using Forest Structures for Passive Automata Learning -- Domain Knowledge Injection Guidance for Predictive Maintenance -- Towards a

systematic approach for Prescriptive Analytics use cases in smart factories -- Development of a standardized data acquisition prototype for heterogeneous sensor environments as a basis for ML applications in pultrusion -- A Digital Twin Design for conveyor belts predictive maintenance -- Augmenting explainable data-driven models in energy systems: A Python framework for feature engineering.

Sommario/riassunto

This open access proceedings presents new approaches to Machine Learning for Cyber-Physical Systems, experiences and visions. It contains some selected papers from the international Conference ML4CPS – Machine Learning for Cyber- Physical Systems, which was held in Hamburg (Germany), March 29th to 31st, 2023. Cyber-Physical Systems are characterized by their ability to adapt and to learn: They analyze their environment and, based on observations, they learn patterns, correlations and predictive models. Typical applications are condition monitoring, predictive maintenance, image processing and diagnosis. Machine Learning is the key technology for these developments. The Editors Prof. Dr. Oliver Niggemann held the professorship at the Institute for Industrial Information Technologies (inIT) in Lemgo (Germany) from 2008 to 2019 and was also deputy head of the Fraunhofer IOSB-INA until 2019. In 2019, he took over the university professorship "Computer Science in Mechanical Engineering" at the Helmut Schmidt University in Hamburg. His research at the Institute for Automation Technology is in the field of artificial intelligence and machine learning for cyber-physical systems. Prof. Dr. -Ing. Jürgen Beyerer is a full professor for informatics at the Institute for Anthropomatics and Robotics at the Karlsruhe Institute of Technology KIT and director of the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB. Research interests include automated visual inspection, signal and image processing, active vision, metrology, information theory, fusion of data and information from heterogeneous sources, system theory, autonomous systems and automation. Dr. Maria Krantz is a Postdoc at the Helmut Schmidt University in Hamburg. Her main research interests are causality in Cyber-Physical Systems and applications of diagnosis algorithms in production systems. Dr. Christian Kühnert is senior scientist at the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB. His research interests are in the field of machine-learning, data-fusion and data analytics for cyber-physical systems.