

1. Record Nr.	UNINA9910983049903321
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Titolo	Numerical Computations: Theory and Algorithms : 4th International Conference, NUMTA 2023, Pizzo Calabro, Italy, June 14–20, 2023 Revised Selected Papers, Part III / / edited by Yaroslav D. Sergeyev, Dmitri E. Kvasov, Annabella Astorino
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	9783031812477 3031812476
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (387 pages)
Collana	Lecture Notes in Computer Science, , 1611-3349 ; ; 14478
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Disciplina	004.0151
Soggetti	Computer science - Mathematics Computer engineering Computer networks Machine learning Application software Algorithms Mathematics of Computing Computer Engineering and Networks Machine Learning Computer and Information Systems Applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Circuit-Based Numerical Solutions of Transmission Lines: Application to Korteweg-de Vries Equations -- Deep Learning Methods for fMRI Classification -- Deep Learning for Scoliosis Diagnosis: Methods and Databases -- Understanding Spreading Dynamics of COVID-19 by Mining Human Mobility Patterns -- Variational Quantum Algorithms for Gibbs State Preparation -- Towards a Parallel Code for Cellular Behavior in Vitro Prediction -- Combinators as Observable Presheaves: A Characterization in the Grossone Framework -- Applying Variational Quantum Classifier on Acceptability Judgements: A QNLP experiment --

Unimaginable Numbers: A Case Study as a Starting Point for an Educational Experimentation -- Some Notes on a Continuous Class of Octagons -- Game Theory Presented to Italian High School Students in Connection with Infinity Computing -- Meta Discussion Pedagogical Model to Foster Mathematics Teacher's Professional Development -- A Variational Quantum Soft Actor-Critic Algorithm for Continuous Control Tasks -- Named Entity Recognition to Extract Knowledge from Clinical Texts -- Applied Mathematical Modelling in the Physics Problem-Solving Classroom -- AIR SAFE: Leveraging IoT Sensors and AI Models to Foster Optimal Indoor Conditions -- Unimaginable Numbers and Infinity Computing at School: An Experimentation in Northern Italy -- The Cantor-Vitali Function and Infinity Computing -- New Probabilistic Methods for Generating Risk Maps -- How to Deal with Different Densities of Urban Spatial Data? A Comparison of Clustering Approaches to Detect City Hotspots -- The Impact of Vectorization on The Efficiency of a Parallel PIC Code for Numerical Simulation of Plasma Dynamics in Open Trap -- Algorithms for Design with CNC Machines: The Case Study of Wood Furniture -- PyGrossone: A Python Library for the Infinity Computer -- Towards Reproducible Research in Machine Learning via Blockchain -- Dossier Classification to Support Workflow Management Optimization -- Self-Sovereign Identification of IoT Devices by Using Physically Unclonable Functions and Blockchain -- Introducing Nondum, a Mathematical Notation for Computation with Approximations -- Visualization of Multilayer Networks -- Legal Systems and Fractals, Towards Infinity Computing -- Exploit Innovative Computer Architecture with Molecular Dynamics -- A Sentiment Analysis on Reviews of Italian Healthcare.-A Numerical Approach to Basic Calculus -- Modelling Hyperentanglement for Quantum Information Processes -- An Innovative Sentiment Analysis Model for COVID-19 Tweets -- Exploring Hierarchical MPI Reduction Collective Algorithms Targeted to Multicore Node Clusters.

Sommario/riassunto

The three-volume set LNCS 14476-14478 constitutes the post conference proceedings of the 4th International Conference on Numerical Computations: Theory and Algorithms, NUMTA 2023, held in Pizzo Calabro, Italy, during June 14-20, 2023. The 45 full papers presented in this book together with 60 short papers were carefully reviewed and selected from 170 submissions. The papers focus on topics such as: continuous and discrete single- and multi-objective problems, local, global and large-scale optimization, classification in machine learning, optimal control, and applications; computational and applied mathematics (such as approximation theory, computational geometry, computational fluid dynamics, dynamical systems and differential equations, numerical algebra, etc.) and applications in engineering and science; numerical models, methods and software using traditional and emerging high-performance computational tools and paradigms (including the infinity and quantum computing) and their application in artificial intelligence and data science, bioinformatics, economics and management, engineering and technology, mathematical education, number theory and foundations of mathematics, etc.