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Nota di contenuto	Computational Health -- Simulation of Blood Flow in the Left Ventricle Considering Purkinje Fibers -- ViT-SE_Res: A Hybrid Vision Transformer and ResNet50V2 with Squeeze-and-Excitation Block for Cervical Cell Classification -- MedCT: A Clinical Terminology Graph for Generative AI Applications in Healthcare -- A Fractional Computation Based Deep Learning Framework for Silicosis Detection -- Combining XAI and Graph Cuts for Skin-lesion Segmentation -- Accelerating Two-Dimensional k-Wave Ultrasound Simulations Through Pruned FFT: A Treatment Planning Optimisation -- A Computational Framework for Modelling Biomechanical Tumour Dynamics and Tissue Interactions: A

Proof-of-Concept in Pleural Mesothelioma -- Towards Sensitivity Analysis: 3D Venous Modelling in the Lower Limb -- Cross-Scale Modeling of Healthcare Norms and Patient Features Dynamics with Interpretable Machine Learning -- Automatic Detection and Segmentation of Coronary Artery Stenosis in Coronary Angiography Images -- Explainable Artificial Intelligence for Clinicians Decision Support in Diagnosing Spinal Pathologies -- Predicting Disease Transmission Rates for Hybrid Modeling of Epidemic Outbreaks: Statistical and Machine Learning Approaches -- Lightweight Heterogeneous SEIR Models for Epidemic Surveillance in Russian Cities: Turning Synthetic Populations into Equations -- Is Health Systems Sustainability Measurable? - Operationalizing SDG Targets using SSP-TOPSIS Approach -- Computational Modeling and Artificial Intelligence for Social Systems -- Automatic Detection and Identification of Causal Relationships in Polish Legal Texts -- A Parameter-free Model for the Online Spread of Far-right Messages: Combining Agent-Based Models with Large-Language Models -- Accelerated Approximation of Bellman Equation Solutions: Agent Policy Optimization with a Feedforward Neural Network -- Simulation-based Inference in Agent-based Models using Spatio-temporal Summary Statistics -- Emergent Communication in Merging Artificial Agent Populations -- MAVS: An Ensemble-Based Multi-Agent Framework for Fake News Detection -- Evolutionary Game Selection Leads to Emergent Inequality -- Computational Optimization, Modelling and Simulation -- Enhancing Gaussian Mixture Model Fitting via Equiprobable Binning and Adaptive Differential Evolution -- Asymptotics in Curve Estimation by Modified Cubic Spline and Exponential Parameterization -- Physics Informed Neural Networks for Non Stationary Material Science Problems -- Adaptive Global Modeling using Neural Networks with Deep Ensembles and Space-filling Sequences -- Automated Antenna Design Using Computational Intelligence and Numerical Optimization -- Near-Optimal Mixed Partial Replications versus Uniform Replication -- Hybrid Subgradient and Simulated Annealing Method for Hemivariational Inequalities -- Reduced-Order Modeling of Compressible Flows Using Supervised Dimensionality Reduction -- Exact and Approximate Methods for Solving the Edge-strength Problem.

Sommario/riassunto

The 6-volume set constitutes the workshop proceedings of the 25th International Conference on Computational Science, ICCS 2025, which took place in Singapore, Singapore, during July 7–9, 2025. The 137 full papers and 32 short papers presented in these proceedings were carefully reviewed and selected from 322 submissions. The papers are organized in the following topical sections: Volume I: Advances in high-performance computational earth sciences: numerical methods, frameworks & applications; artificial intelligence approaches for network analysis; artificial intelligence and high-performance computing for advanced simulations; and biomedical and bioinformatics challenges for computer science. Volume II: Computational health; computational modeling and artificial intelligence for social systems; and computational optimization, modelling and simulation. Volume III: Computational science and AI for addressing complex and dynamic societal challenges equitably; computer graphics, image processing and artificial intelligence; computing and data science for materials discovery and design; and large language models and intelligent decision-making within the digital economy. Volume IV: Machine learning and data assimilation for dynamical systems; and multi-criteria decision-making: methods, applications, and innovations. Volume V: (Credible) Multiscale modelling and simulation; numerical algorithms and computer

arithmetic for computational science; quantum computing; retrieval-augmented generation; and simulations of flow and transport: modeling, algorithms and computation. Volume VI: Smart systems: bringing together computer vision, sensor networks and artificial intelligence; solving problems with uncertainty; and teaching computational science.
