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Nota di contenuto	Quantum Computing Workshop -- Implementing Quantum Finite Automata Algorithms on Noisy Devices -- OnCall Operator Scheduling for Satellites with Grover’s Algorithm -- Multimodal Container Planning: a QUBO Formulation and Implementation on a Quantum Annealer -- Portfolio Optimisation Using the D-Wave Quantum Annealer -- Cross Entropy Optimization of Constrained Problem Hamiltonians for Quantum Annealing -- Classification using a two-qubit quantum chip -- Performance Analysis of Support Vector Machine Implementations on the D-Wave Quantum Annealer -- Adiabatic Quantum Feature Selection for Sparse Linear Regression -- EntDetector: entanglement detecting toolbox for bipartite quantum

states -- On Decision Support for Quantum Application Developers: Categorization, Comparison, and Analysis of Existing Technologies -- Quantum Asymmetric Encryption Based on Quantum Point Obfuscation -- Index calculus method for solving elliptic curve discrete logarithm problem using quantum annealing -- Simulations of Flow and Transport: Modeling, Algorithms and Computation -- Multi-phase compressible compositional simulations with phase equilibrium computation in the VTN specification -- A three-level linearized time integration scheme for tumor simulations with Cahn-Hilliard equations -- Poroelasticity Modules for DarcyLite -- Mathematical Modeling of the Single-Phase Multicomponent Flow in Porous Media -- An enhanced finite element algorithm for thermal Darcy flows with variable viscosity -- Multilevel adaptive Lagrange-Galerkin methods for unsteady incompressible viscous flows -- Numerical investigation of transport processes in porous media under laminar, transitional and turbulent flow conditions with the lattice-Boltzmann method -- A Study on a Marine Reservoir and a Fluvial Reservoir History Matching Based on Ensemble Kalman Filter -- Numerical Simulation of Free Surface Aected by Submarine with a Rotating Screw Moving Underwater -- Modeling and Simulation of Atmospheric Water Generation Unit Using Anhydrous Salts -- Smart Systems: Bringing Together Computer Vision, Sensor Networks and Machine Learning -- Improving UWB Indoor Localization Accuracy Using Sparse Fingerprinting and Transfer Learning -- Eective Car Collision Detection with Mobile Phone Only -- Corrosion detection on aircraft fuselage with multi-teacher knowledge distillation -- Warm-Start Meta-Ensembles for Forecasting Energy Consumption in Service Buildings -- Supporting the process of sewer pipes inspection using machine learning on embedded devices -- Explanation-driven model stacking -- Software Engineering for Computational Science -- I/O Associations in Scientific Software: A Study of SWMM -- Understanding Equity, Diversity and Inclusivity Challenges Within the Research Software Community -- Solving Problems with Uncertainty -- The Necessity and Difficulty of Navigating Uncertainty to Develop an Individual-Level Computational Model -- Predicting Soccer Results through Sentiment Analysis: A Graph Theory Approach -- Advantages of interval modification of NURBS curves in modeling uncertain boundary shape in boundary value problems -- Introducing Uncertainty Into Explanaible AI Methods -- New rank-reversal free approach to handle interval data in MCDA problems -- Vector and triangular representations of project estimation uncertainty: eect of gender on usability -- The use of type-2 fuzzy sets to assess delays in the implementation of the daily operation plan for the operating theatre -- Linguistic Summaries using Interval-valued Fuzzy Representation of Imprecise Information - an Innovative Tool for Detecting Outliers -- Combining heterogeneous indicators by adopting Adaptive MCDA: dealing with Uncertainty -- Solutions and Challenges in Computing FBSDEs with Large Jumps for Dam and Reservoir System Operation -- Optimization of Resources Allocation in High Performance Computing under Utilization Uncertainty -- A comparison of the Richardson extrapolation and the approximation error estimation on the ensemble of numerical solutions -- Predicted Distribution Density Estimation for Streaming Data -- LSTM processing of experimental time series with varied quality -- Sampling method for the robust single machine scheduling with uncertain parameters -- Teaching Computational Science -- Biophysical Modeling of Excitable Cells - a new Approach to Undergraduate Computational Biology Curriculum Development -- Increasing the impact of teacher presence in online lectures -- Model-

based approach to automated provisioning of collaborative educational services -- A collaborative peer review process for grading coding assignments in coursework -- How Do Teams of Novice Modelers Choose An Approach? An Iterated, Repeated Experiment In A First-Year Modeling Course -- Uncertainty Quantification for Computational Models -- Detection of conditional dependence between multiple variables using multiinformation -- Uncertainty Quantification of Coupled 1D Arterial Blood Flow and 3D Tissue Perfusion Models Using the INSIST Framework -- Second Order Moments of Multivariate Hermite Polynomials.

Sommario/riassunto

The six-volume set LNCS 12742, 12743, 12744, 12745, 12746, and 12747 constitutes the proceedings of the 21st International Conference on Computational Science, ICCS 2021, held in Krakow, Poland, in June 2021.* The total of 260 full papers and 57 short papers presented in this book set were carefully reviewed and selected from 635 submissions. 48 full and 14 short papers were accepted to the main track from 156 submissions; 212 full and 43 short papers were accepted to the workshops/ thematic tracks from 479 submissions. The papers were organized in topical sections named: Part I: ICCS Main Track Part II: Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Applications of Computational Methods in Artificial Intelligence and Machine Learning; Artificial Intelligence and High-Performance Computing for Advanced Simulations; Biomedical and Bioinformatics Challenges for Computer Science Part III: Classifier Learning from Difficult Data; Computational Analysis of Complex Social Systems; Computational Collective Intelligence; Computational Health Part IV: Computational Methods for Emerging Problems in (dis-)Information Analysis; Computational Methods in Smart Agriculture; Computational Optimization, Modelling and Simulation; Computational Science in IoT and Smart Systems Part V: Computer Graphics, Image Processing and Artificial Intelligence; Data-Driven Computational Sciences; Machine Learning and Data Assimilation for Dynamical Systems; MeshFree Methods and Radial Basis Functions in Computational Sciences; Multiscale Modelling and Simulation Part VI: Quantum Computing Workshop; Simulations of Flow and Transport: Modeling, Algorithms and Computation; Smart Systems: Bringing Together Computer Vision, Sensor Networks and Machine Learning; Software Engineering for Computational Science; Solving Problems with Uncertainty; Teaching Computational Science; Uncertainty Quantification for Computational Models *The conference was held virtually.