

1. Record Nr.	UNISA996418308303316
Titolo	Computational Science – ICCS 2020 [[electronic resource] ] : 20th International Conference, Amsterdam, The Netherlands, June 3–5, 2020, Proceedings, Part VII // edited by Valeria V. Krzhizhanovskaya, Gábor Závodszy, Michael H. Lees, Jack J. Dongarra, Peter M. A. Sloot, Sérgio Brissos, João Teixeira
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-50436-0
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (786 pages)
Collana	Theoretical Computer Science and General Issues, , 2512-2029 ; ; 12143
Disciplina	004
Soggetti	Computer science Computer science—Mathematics Computer engineering Computer networks Artificial intelligence Computer vision Theory of Computation Mathematics of Computing Computer Engineering and Networks Artificial Intelligence Computer Vision
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Simulations of Flow and Transport: Modeling, Algorithms and Computation -- Decoupled and energy stable time-marching scheme for the interfacial flow with soluble surfactants -- A Numerical Algorithm to Solve the Two-Phase Flow in Porous Media Including Foam Displacement -- A three-dimensional, one-field, fictitious domain method for fluid-structure interactions -- Multi Axes Sliding Mesh Approach for Compressible Viscous Flows -- Monolithic arbitrary Lagrangian-Eulerian finite element method for a multi-domain blood

flow-aortic wall interaction problem -- Morphing Numerical Simulation of Incompressible Flows Using Seamless Immersed Boundary Method -- deal.II Implementation of a Two-field Finite Element Solver for Poroelasticity -- Numerical Investigation of Solute Transport in Fractured Porous Media Using the Discrete Fracture Model -- Adaptive multiscale model reduction for nonlinear parabolic equations using GMsFEM -- Parallel Shared-Memory Isogeometric Residual Minimization (iGRM) for Three-Dimensional Advection-Diffusion Problems -- Numerical simulation of heat transfer in an enclosure with time-periodic heat generation using finite-difference method -- Development of an Object-Oriented Programming Tool based on FEM for Numerical Simulation of Mineral-Slurry Transport -- Descending Flight Simulation of Tiltrotor Aircraft at Different Descent Rates -- The quantization algorithm impact in hydrological applications: preliminary results -- An Expanded Mixed Finite Element Method for Space Fractional Darcy Flow in Porous Media -- Prediction of the Free Jet Noise Using Quasi-Gas Dynamic Equations and Acoustic Analogy -- Simulation Based Exploration of Bacterial Cross Talk Between Spatially Separated Colonies in A Multispecies Biofilm Community -- Massively Parallel Stencil Code for Radiation Transport Moment Model Simulations -- Hybrid Mixed Methods Applied to Miscible Displacements with Adverse Mobility Ratio -- Smart Systems: Bringing Together Computer Vision, Sensor Networks and Machine Learning -- Learn More from Context: Joint Modeling of Local and Global Attention for Aspect Sentiment Classification -- ArtPDGAN: Creating Artistic Pencil Drawing With Key Map Using Generative Adversarial Networks -- Interactive travel aid for the visually impaired – from depth maps to sonic patterns and verbal messages -- Ontology-Driven Edge Computing -- Combined Metrics for Quality Assessment of 3D Printed Surfaces for Aesthetic Purposes: Towards Higher Accordance with Subjective Evaluations -- Path Markup Language for Indoor Navigation -- Smart Fire Alarm System with Person Detection and Thermal Camera -- Data Mining for Thermal Analysis of Big Dataset of HPC-Data Center -- A comparison of multiple objective algorithms in the context of a dial a ride problem -- Software Engineering for Computational Science -- Lessons learned in a decade of research software engineering GPU applications -- Unit Tests of Scientific Software: A Study on SWMM -- NUMA-Awareness as a Plug-In for an Eventify-based Fast Multipole Method -- Boosting Group-level Synergies by Using a Shared Modeling Framework -- Testing Research Software: A Case Study -- APE: A Command-Line Tool and API for Automated Workflow Composition -- Solving Problems with Uncertainties -- An ontological approach to Knowledge Building by Data Integration -- A Simple Stochastic Process Model for River Environmental Assessment under Uncertainty -- A posteriori error estimation via differences of numerical solutions -- Global Sensitivity Analysis of Various Numerical Schemes for the Heston Model -- Robust single machine scheduling with random blocks in an uncertain environment -- Empirical Analysis of Stochastic Methods of Linear Algebra -- Wind field parallelization based on Python multiprocessing to reduce forest fire propagation prediction uncertainty -- Risk Profiles of Financial Service Portfolio for Women Segment using Machine Learning Algorithms -- Multidimensional BSDEs With Mixed Reflections And Balance Sheet Optimal Switching Problem -- Teaching Computational Science -- Modeling and Automatic Code Generation Tool for Teaching Concurrent and Parallel Programming by Finite State Processes -- Automatic feedback provision in teaching computational science -- Computational Science vs. Zombies -- Supporting education in algorithms of computational

mathematics by dynamic visualizations using computer algebra system -- Teaching Complexity and Transdisciplinary Tools through a Computational Model of the Social Construction of Reality -- Bringing Harmony to Computational Science Pedagogy -- UNcErtainty QUantificatiOn for ComputatiOnAl modeLs -- Intrusive Polynomial Chaos for CFD using OpenFOAM -- Distributions of a general reduced-order dependence measure and conditional independence testing -- MCMC for Bayesian uncertainty quantification from time-series data -- Uncertainty quantification for multiscale fusion plasma simulations with VECMA toolkit -- Sensitivity analysis of soil parameters in crop model supported with high-throughput computing -- A blu-and-fix algorithm for polynomial chaos methods -- Markov Chain Monte Carlo Methods for Fluid Flow Forecasting in the Subsurface.

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## Sommario/riassunto

The seven-volume set LNCS 12137, 12138, 12139, 12140, 12141, 12142, and 12143 constitutes the proceedings of the 20th International Conference on Computational Science, ICCS 2020, held in Amsterdam, The Netherlands, in June 2020.\* The total of 101 papers and 248 workshop papers presented in this book set were carefully reviewed and selected from 719 submissions (230 submissions to the main track and 489 submissions to the workshops). The papers were organized in topical sections named: Part I: ICCS Main Track Part II: ICCS Main Track Part III: Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Agent-Based Simulations, Adaptive Algorithms and Solvers; Applications of Computational Methods in Artificial Intelligence and Machine Learning; Biomedical and Bioinformatics Challenges for Computer Science Part IV: Classifier Learning from Difficult Data; Complex Social Systems through the Lens of Computational Science; Computational Health; Computational Methods for Emerging Problems in (Dis-)Information Analysis Part V: Computational Optimization, Modelling and Simulation; Computational Science in IoT and Smart Systems; Computer Graphics, Image Processing and Artificial Intelligence Part VI: Data Driven Computational Sciences; Machine Learning and Data Assimilation for Dynamical Systems; Meshfree Methods in Computational Sciences; Multiscale Modelling and Simulation; Quantum Computing Workshop Part VII: 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 Uncertainties; Teaching Computational Science; UNcErtainty QUantificatiOn for ComputatiOnAl modeLs \*The conference was canceled due to the COVID-19 pandemic. Chapter 'APE: A Command-Line Tool and API for Automated Workflow Composition' is available open access under a Creative Commons Attribution 4.0 International License via [link.springer.com](https://link.springer.com).

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