1. Record Nr. UNISA996418310003316

Titolo	High Performance Computing [[electronic resource]] : ISC High Performance 2020 International Workshops, Frankfurt, Germany, June 21–25, 2020, Revised Selected Papers / / edited by Heike Jagode, Hartwig Anzt, Guido Juckeland, Hatem Ltaief
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-59851-9
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XI, 382 p. 181 illus., 104 illus. in color.)
Collana	Theoretical Computer Science and General Issues, , 2512-2029 ; ; 12321
Disciplina	004.3
Soggetti	Computer engineering Computer networks Application software Artificial intelligence Computers Software engineering Computer Engineering and Networks Computer and Information Systems Applications Artificial Intelligence Computing Milieux Computer Communication Networks Software Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Checking and Performance Optimization for HPC (C3PO'20) -- Compiler-assisted type-safe checkpointing -- Static analysis to enhance programmability and performance in OmpSs-2 21 Automatic detection of MPI assertions -- Automatic Code Motion to Extend MPI Nonblocking Overlap Window -- First International Workshop on the Application of Machine Learning Techniques to Computational Fluid Dynamics Simulations and Analysis (CFDML) .-Complete Deep Computer-Vision Methodology for Investigating Hydrodynamic

Instabilities -- Prediction of Acoustic Fields using a Lattice-Boltzmann Method and Deep Learning -- Unsupervised Learning of Particle Image Velocimetry -- Reduced order modeling of dynamical systems using arti cial neural networks applied to water circulation -- Parameter Identification of RANS turbulence model using Physics-embedded neural network -- Investigating the Overhead of the REST Protocol when Using Cloud Services for HPC Storage -- Characterizing I/O Optimization E ect Through Holistic Log Data Analysis of Parallel File Systems and Interconnects -- The Importance of Temporal Behavior when Classifying Job IO Patterns Using Machine Learning Techniques -- GOPHER, an HPC framework for large scale graph exploration and inference -- Ensembles of Networks Produced from Neural Architecture Search -- SmartPred: Unsupervised Hard Disk Failure Detection -- Application IO analysis with Lustre Monitoring using LASSi for ARCHER -- Characterizing HPC Performance Variation with Monitoring and Unsupervised Learning -- Service Function Chaining Based on Segment Routing Using P4 and SR-IOV (P4-SFC) -- Seamlessly managing HPC workloads through Kubernetes -- Interference-aware Orchestration in Kubernetes -- RustyHermit: A Scalable, Rust-based Virtual Execution Environment -- Rootless Containers with Podman for HPC -- Bioinformatics application with Kube ow for batch processing in clouds -- Converging HPC, Big Data and Cloud technologies for precision agriculture data analytics on supercomputers.

Sommario/riassunto

This book constitutes the refereed post-conference proceedings of 10 workshops held at the 35th International ISC High Performance 2020 Conference, in Frankfurt, Germany, in June 2020: First Workshop on Compiler-assisted Correctness Checking and Performance Optimization for HPC (C3PO); First International Workshop on the Application of Machine Learning Techniques to Computational Fluid Dynamics Simulations and Analysis (CFDML); HPC I/O in the Data Center Workshop (HPC-IODC); First Workshop \Machine Learning on HPC Systems" (MLHPCS); First International Workshop on Monitoring and Data Analytics (MODA); 15th Workshop on Virtualization in High-Performance Cloud Computing (VHPC). The 25 full papers included in this volume were carefully reviewed and selected. They cover all aspects of research, development, and application of large-scale, high performance experimental and commercial systems. Topics include high-performance computing (HPC), computer architecture and hardware, programming models, system software, performance analysis and modeling, compiler analysis and optimization techniques, software sustainability, scientific applications, deep learning.