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(editors)**



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Preface

Currently, one of the promising areas for the development of high-performance computing technologies and systems are hybrid solutions that use various “computing accelerators” or coprocessors (primarily graphics accelerators – GPUs) in addition to central processors. In fact, such GPUs contain a large number (thousands) of relatively simple computing cores that are capable of simultaneously working on one task. On some types of tasks, GPUs provide significantly higher performance than traditional processors, while having a lower cost and power consumption per instruction. Active development of the accompanying ecosystem, including the creation of effective algorithms for parallel data processing, new development tools, as well as providing training and user support, opened up the possibilities of hybrid solutions applications not only for solving problems using machine learning and deep learning methods, but also in areas that were previously strictly focused on the use of classical computing architectures.

The International Conference "Information Technologies and High-Performance Computing" (ITHPC) is held in Khabarovsk every two years to discuss and exchange the results of research in the field of modern computer technologies. In 2021, the conference is being held for the sixth time by the Computing Center of the Far Eastern Branch of the Russian Academy of Sciences. The main directions of the conference:

- methods and algorithms of mathematical modeling using high-performance computing systems;
- distributed information systems, grid-technologies and cloud computing;
- information and computing technologies for research and monitoring of natural-technical systems.

There were 89 papers submitted for peer-review to this ITHPC ITHPC-2021. Highly qualified editors, selected by the Program Committee, and independent experts, selected the 31 papers (35% of the total number) to publish in this volume. Articles are divided into thematic areas related to the development of scientific and methodological concepts of information technology and high-performance computing and their application in various natural and technical systems. A significant part of the presented scientific results was obtained using the resources of the Center for Shared Use of Scientific Equipment "Center for Processing and Storage of Scientific Data of the Far Eastern Branch of the Russian Academy of Sciences".

We are grateful to the authors for their submissions, to the Editors and the Program Committee for the active work on publication. We would like to note the Nvidia company for their help in holding the conference, as well as CEUR Workshop Proceedings (CEUR-WS.org) for being the publisher of ITHPC proceedings in 2019 (<http://ceur-ws.org/Vol-2426/>) and 2021.

For more information about the conference see <http://conf.ccfefbras.ru/en/>

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Contents

Organization of Effective Work of High-Performance Computing Systems

Interaction of Cloud Services with External Software and its Implementation on the IACPaaS Platform Valeria Gribova, Leonid Fedorischev, Philip Moskalenko, Vadim Timchenko	8
Accelerating Deep Learning for Shared Facility Centers Using Tensorflow Framework Analysis Based on IBM POWER Platform Oleg Nikitin, Olga Lukyanova	19
National Research Computer Network of Russia: Regulatory Status and Plans for the Development of Regional Telecommunications Infrastructure in 2021-2024 Alexey G. Abramov, Anton V. Evseev, Andrey A. Gonchar, Pavel N. Telegin, Boris M. Shabanov	29
High Performance Computing in a Shared Virtual Infrastructure Konstantin Volovich, Alexander Zatsarinnyy, Sergey Frenkel, Sergey Denisov	38
Some Approaches to Managing Computing Resources of a Hybrid High-Performance Cluster in a Cloud Environment Konstantin Volovich, Vadim Kondrashev, Mikhail Posypkin, Sergey Denisov	47
Unveiling and Conceptual-Logical Modeling of Phase Sequences in Data Engineering Aleksandr Rodionov, Georgiy Tsoy	54
Methodology for Evaluation the Effectiveness of the System of Dynamic Block Access to Data of Ultra-Large Distributed Remote Sensing Archives Andrey Proshin, Evgeniy Loupian, Sergey Bartalev	62

Computer Design of New Materials

DFT Analysis of Different Shaped Cu Nanowires for Interconnect Application Sonal Agrawal, Anurag Srivastava, Gaurav Kaushal	70
Behavior of Two Hole Qubits of Boron Atoms in Silicene Mary A. Chibisova, Andrey N. Chibisov, Anurag Srivastava	79
Simulation of the Neuromorphic Network Operation Taking into Account Stochastic Effects Alexander Yu. Morozov, Karine K. Abgaryan, Dmitry L. Reviznikov	84

The Use of Modern Information Technology for Research of Technical and Natural Systems

Using Topic Modeling to Improve the Quality of Age-Based Text Classification Anna Glazkova	92
Variational Method for Solving Contact Problem of Elasticity Robert Namm, Georgiy Tsoy, Ellina Vikhtenko, Gyungsoo Woo	98

Towards the Unified Approach for Obtaining Hydro-Meteorological and Landscape Characteristics for River Catchments Dmitriy Abramov, Georgy Ayzel, Oleg Nikitin	106
Information Technologies for the Analyzing of Kamchatka and the Kuril Islands Volcanoes Activity in 2019-2020 Olga Girina, Evgeniy Loupian, Aleksei Sorokin, Iraida Romanova, Dmitry Melnikov, Alexander Manevich, Anton Nuzhdaev, Sergey Bartalev, Alexander Kashnitskii, Ivan Uvarov, Sergey Korolev, Sergey Malkovsky and Lyubov Kramareva	112
Data Preprocessing for Machine Learning in Seismology Vladimir Chernykh, Andrey Stepnov, Olga Lukyanova	119
Methods for Analyzing Heterogeneous Data in the Tasks of Assessing Territorial Risks Olga V. Taseiko, Uliana. S. Postnikova, Margarita Georgieva, Hranislav Milosevic, Stefan Panic	124
Comparison of AI-Based Approaches for Statistical Downscaling of Surface Wind Fields in the North Atlantic Vadim Rezvov, Mikhail Krinitskiy, Alexander Gavrikov, Sergey Gulev	129
Development and Evaluation of National-Scale Operational Hydrological Forecasting Services in Russia Georgy Ayzel, Aleksei Sorokin	135

Mathematical Modeling in Physics and Technology

Numerical Solution of the Crack Problem by the Weighted FEM Viktor A. Rukavishnikov, Andrew O. Mosolapov	142
Mathematical Modelling of Forming Processes in the Conditions of Uniaxial Compaction of Powder Wax-Like Materials Sergey G. Zhilin, Oleg N. Komarov, Nina A. Bogdanova, Oleg S. Amosov	148
Optimization of Parallel tempering Monte-Carlo algorithm on 2D Ising model Alexey Rybin, Dmitrii Y. Kapitan, Konstantin V. Nefedev, Petr Andriushchenko, Vitalii Y. Kapitan	155
Two-Dimensional Hardy Operators in Lebesgue Spaces Vladimir D. Stepanov, Elena P. Ushakova, Sergey E. Zhukovskiy	161
High-performance Computing for Simulation Testing of Smart Materials for Their Further Employment in Modern Diesel Engine Fuel Supply System Vladimir V. Bogdanov, Sergey V. Timoshin, Igor S. Chabunin, Andrey E. Kovtanyuk, Il'ya V. Pugachev, Gennadiy V. Stepanov	167
Mathematical Models of Pipelines Alternative Stress States Viktor A. Rukavishnikov, Oleg P. Tkachenko	173
Influence of the Design Mode of the Turbine Design on the Gas Dynamics of the Flow in its Flow Part Andrey Passar, Alexander A. Grusho	180

Modeling of Relaxation Processes in Air Flows behind Shock Waves Anton G. Karpenko, Semen S. Tolstoguzov, Konstantin N. Volkov	186
Optimization of the Hybrid Monte-Carlo Algorithm for the Edwards-Anderson Model Dmitrii Yu. Kapitan, Alexey E. Rybin, Petr D. Andriushchenko, Aleksandr G. Makarov, Yuriy. A. Shevchenko, Konstantin S. Soldatov, Vitalii Yu. Kapitan, Konstantin V. Nefedev	194
Two-Dimensional Mathematical Model of Pipelines with a Complex Intersected Profile Anna S. Ryabokon, Oleg P. Tkachenko, Viktor A. Rukavishnikov	200
Computer Simulation of Skyrmions on a Square Lattice Aleksander Perzhu, Egor Vasiliev, Dmitrii Kapitan, Alexey Rybin, Alena Korol, Konstantin Nefedev, Vitalii Kapitan	206
High-performance Calculation of the Relation between the Load of the Motor Vehicle Undercarriage, its Smoothness of the Ride and the Value of Unsprung Weights Vladimir V. Bogdanov, Grigoryi A. Bondarenko, Andrey E. Kovtanyuk, Igor S. Chabunin	212
Spline Wavelets and Integration Operators Elena P. Ushakova, Sergey E. Zhukovskiy	219