02.12

Time	Event	Location
08:30	Registration, coffee/tea	WINTER GARDEN
10:00	Conference opening, main track	BLUE HALL

Participants: RAS leaders, members of Russian government, RAS institutes, universities, ISP RAS international scientific and business partners.

11:00	Technology exhibition	LOBBY
13:20	Buffet lunch	WINTER GARDEN
16:00	Coffee break	WINTER GARDEN

SECTION DIGITAL MEDICINE

12:00   Digital medicine roundtable

14:00   Buffet lunch

14:40   Chinar Movsisyan (ISP RAS), Sos Agaian (City University of New York), Svetlana Grigoryan (Institute of Cardiology, Armenia)
Novel CAD Grading System for Identification of Acute Coronary Syndrome in Patients Undergoing COVID-19

15:00   Egor Ushakov, Anton Naumov, Andrey Ivanov (ISP RAS), Konstantin Midiber, Tatyana Khovanskaya, Alexandra Konyukova (Avtsyn Scientific Research Institute of Human Morphology), Polina Vishnyakova (National Medical Research Center for Obstetrics, Gynecology and Perinatology), Sergei Nora (Yaroslav-the-Wise Novgorod State University), Liudmila Mikhaleva, Timur Fatkhudinov (Avtsyn Scientific Research Institute of Human Morphology), Evgeny Karpulevich (ISP RAS)
Detecting Variously Colored Nuclei on Histological Images

15:20   Andrey Gomzin, Maksim Komarov (ISP RAS), Marina Sekachyova (Sechenov University), Damir Engalychev (Element Medical IT Lab)
Methods for Predicting Survival Based on The Personal Characteristics of The Patient and the Stage of the Tumor Process

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15:40   Alisher Ibragimov, Sofia Senotrusova (ISP RAS), Elizaveta Tyschuk, Anastasiya Sirotskaya, Olga Stepanova, Viktoria Konstantinova, Arina Oshkolova, Maria Zementova, Anastasiya Kovaleva, Polina Grebenkina, Ksenia Markova, Dmitriy Sokolov, Sergey Selkov (National Medical Research Center for Obstetrics, Gynecology and Perinatology), Evgeny Karpulevich (ISP RAS)
Semantic Segmentation of Capillary-Like Structures via Deep Learning

16:00   Coffee break

16:20   Egor Tirikov, Sergey Stupnikov (Federal Research Center "Computer Science and Control")
fMRI Neurofeedback: Brain State Classification in Real Time

17:00   Vladislav Ananev, Sergey Skorik, Vsevolod Shaklein, Aram Avetisyan (ISP RAS), Yury Teregulov (Kazan State Medical University), Denis Turdakov (ISP RAS), Vadim Gliner, Assaf Schuster (Technion-IIT), Evgeny Karpulevich (ISP RAS)
Using Non-Architectural Changes of Predictive Model for Classifying ECG

17:20   Miroslava Chirkova, Olga Mashkova, Andrey Ivanov, Olesya Kondratieva, Evgeny Karpulevich (ISP RAS)
Digital Transformation in the Context of Genetic Data Analysis

SECTION OPEN SOURCE SOFTWARE IN CONTINUUM MECHANICS PROBLEM SOLVING

11:50   Section opening

12:00   Tianyuan Wang (Ocean University of China), Hongda Shi (Key Laboratory of Ocean Engineering of Shandong Province), Qin Zhang (Ocean University of China), Matvey Kraposhin (ISP RAS), Qingqing Yang, Yeting Tang (Ocean University of China)
Modal Analysis of Flow Past Two Circular Cylinders in 60-Degree Arrangement

12:20   Bo Yang, Bingchen Liang, Mengxiang Qu, Qin Zhang (Ocean University of China), Matvey Kraposhin (ISP RAS)
Numerical Simulation of Separated Flow Around a Pipeline Near Scoured Bed Based on SA-IDDES Method

12:40   Philippe Fraunie (Mediterranean Institute of Oceanography, France)
Numerical Investigation of Mesoscale Coherent Structures in Mediterranean Sea

13:00   Aleksandr Ivanov (Keldysh Institute of Applied Mathematics, ISP RAS)
A Software Package for Flows Simulation in the Coastal Regions of the Kara and Barents Seas Using Shallow Water Approximation

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13:20   Buffet lunch

14:20   Dmitrii Golovin (VNIIFTRI)
Application of Quasi-Gas Dynamic Equations for Modeling Air Flows with Extremely Small Mach Numbers

14:40   Olga Feodoritova, Mikhail Krasnov, Natalia Novikova, Victor Zhukov (Keldysh Institute of Applied Mathematics)
Development of the MCFL Code for 3D Multicomponent Flow Simulation

15:00   Igor Kulikov, Igor Chernykh, Dmitry Karavaev, Anna Sapetina (Institute of Computational Mathematics and Mathematical Geophysics of SB RAS)
The Energy Efficiency Research of Godunov Method on Intel Xeon Scalable Architecture

15:20   Victoria Korchagova (ISP RAS)
Using Dynamic Mesh Rebuild Algorithms when Solving Fluid Dynamics Problems Via Discontinuous Galerkin Method

15:40   Mikhail Ermakov (Ishlinsky Institute for Problems in Mechanics)
Generating Quasi-Structured Meshes via the Gmsh Open Package

16:00   Coffee break

16:20   Ilya Evdokimov, Susann Hänsch (Helmholtz-Zentrum Dresden — Rossendorf)
Quality Assessment of CFD Software Using Workflows and Decision Trees

16:40   Ilias Sibgatullin, Stepan Elistratov, Daniil Ryazanov (ISP RAS), Alexander Petrov (Ishlinsky Institute for Problems in Mechanics), Evgeniy Yermanyuk (Lavrentyev Institute of Hydrodynamics)
Analyzing Coherent Structures in Wave Turbulence Using Open Source Software

SECTION MANAGEMENT OF DATA AND INFORMATION SYSTEMS

12:00   Dmitry Vatolin (Moscow State University)
Cheating Techniques for Video Compression Using ML-Metrics Vulnerabilities

12:40   Xiang Ji (National University of Defense Technology, China), Xiao Yan (Southern University of Science and Technology, China), Kaijun Ren, Xiang Wang (National University of Defense Technology, China), Bo Tang (Southern University of Science and Technology, China)
Effective and Efficient Summarization for Non-Hierarchical Data

13:00   Viacheslav Shalamov, Valeria Efimova, Andrey Filchenkov (ITMO University)
Paraphrase Quality Assessment Metric and Russian Paraphrase Dataset Collection

13:20   Buffet lunch

14:20   Dmitry Motrichenko, Yaroslav Nedumov, Kirill Skorniakov (ISP RAS)
Bag of Tricks for Citation Intent Classification via Sci-Bert

14:40   Andrey Mikhailov (Matrosov Institute for System Dynamics and Control Theory, ISP RAS), Alexey Shigarov (Matrosov Institute for System Dynamics and Control Theory)
Page Layout Analysis for Refining Table Extraction from PDF Documents

15:00   Dmitry Kiranov (ISP RAS, MIPT University), Maxim Ryndin, Ilya Kozlov (ISP RAS)
Active Learning and Transfer Learning for Document Segmentation

15:20   Christian Cintrano, Jamal Toutouh (Universidad de Málaga, Spain), Sergio Nesmachnow (Universidad de la República, Uruguay)
User-Centric Multiobjective Location of Electric Vehicle Charging Stations in a City-Scale Area

15:40   David Pena, Bernabe Dorronsoro (University of Cadiz, Spain), Andrei Tchernykh (CICESE Research Centre, Mexico), Patricia Ruiz (University of Cadiz, Spain)
Public Transport Timetabling with Charging Optimization Using Multiple Electric Buses Types

16:00   Coffee break

16:20   Andrei Tchernykh, Israel Rescalvo-Anastacio (CICESE Research Centre, Mexico), Jorge Mario Cortés-Mendoza (South Ural State University), Bernardo Pulido-Gaytan (CICESE Research Centre, Mexico), Alexander Hollay (South Ural State University), Mikhail Babenko (NCFU), Alexander Drozdov (MIPT University), Sergio Nesmachnow (Universidad de la República, Uruguay)
Pointer Networks with Reinforcement Learning for Reliability and Performance Optimization of Secure Multi-Cloud Storage

16:40   Evgeniy Savinov, Evgeny Ivashko (Karelian Research Centre of RAS, Petrozavodsk State University)
Automatic Contactless Weighing of Fish During Experiments

SECTION TECHNOLOGIES OF PROGRAM ANALYSIS, MODELING AND TRANSFORMATION

11:30   The "Community analysis of open source components" pilot project meeting
BY INVITATION

14:00   Buffet lunch

14:30   The Svace static analyzer analyzer user meeting
BY INVITATION

16:00   Coffee break

16:20   Vitaly Afanasyev, Sergey Polyakov, Alexey Borodin, Andrey Belevantsev (ISP RAS)
Kotlin from the Perspective of a Static Analyzer Developer

16:40   Sergey Syromyatnikov (ISP RAS)
Automatic Fixing of Source Code Defects in the Svace Analyzer

17:00   Mikhail Belyaev, Valery Ignatiev (ISP RAS)
Exception Analysis for Errors Detection in the SharpChecker Static Analyzer for C#

17:20   Vladimir Kachanov, Mikhail Ermakov, Georgy Pankratenko, Alexander Spiridonov, Alexander Volkov, Sergei Markov (ISP RAS)
Technical Debt in the Software Development Lifecycle: Code Smells

17:40   Nikita Shimchik, Valery Ignatiev (ISP RAS)
Improving Accuracy and Completeness of Source Code Static Taint Analysis

18:00   Alexey Borodin, Varvara Dvortsova, Sergey Vartanov, Alexander Volkov (ISP RAS)
Static Analyzer for Go

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IVANNIKOV ISP RAS OPEN CONFERENCE 02–03.12.2021

IVANNIKOV ISP OF THE RAS

03.12

SECTION OPEN SOURCE SYSTEMS FOR DIGITAL HARDWARE DESIGN `RED HALL`

10:00   Open source systems for digital hardware design roundtable. Invited speaker talk (topic TBD)

12:00   Break

12:20   Alexander Kamkin, Sergey Smolov, Mikhail Chupilko (ISP RAS, Plekhanov Russian University of Economics)
Comparison of Open Flows for Digital Hardware Design: qFlow, OpenLANE, Coriolis, and SymbiFlow

12:40   Daniil Zheleznikov, Vasily Khvatov (IDPM RAS)
Specific Features of CAD Software for Heterogeneous FPGAs Produced in Russia

13:00   Georgy Lukyanchenko (Malt System)
Open Source Flow for FPGA Architecture Prototyping. From RTL Benchmarks to Bitstream Performance Evaluation

13:20   Alexander Monakhov (Digital Microelectronics Design Center of Moscow State University)
Applicability Evaluation of Open CAD Systems for Implementing Designs Targeting ULAs Produced in Russia

13:40   Buffet lunch

14:20   Alexander Kamkin (ISP RAS, Plekhanov Russian University of Economics)
High-Level Synthesis: Introduction to the Subject

14:40   Mikhail Lebedev, Pavel Belecky (ISP RAS, Plekhanov Russian University of Economics)
Artificial Neural Network Inference on FPGAs Using Open-Source Tools

15:00   Nikita Chertok, Mikhail Chupilko (ISP RAS, Plekhanov Russian University of Economics)
Survey of Methods for Functional Online Testing of Microprocessors

15:20   Sergey Smolov (ISP RAS, Plekhanov Russian University of Economics)
Experimental Comparison of Open-Source Model Checkers for Digital Hardware

15:40   Ivan Grigorov (ISP RAS, Higher School of Economics)
TCE: TTA-Based HW/SW Co-Design Environment

SECTION OPEN SOURCE SOFTWARE IN CONTINUUM MECHANICS PROBLEM SOLVING `BEIGE HALL`

9:50   Section opening

10:00   Prof. Dr.-Ing. Bernhard Peters (Université du Luxembourg)
A Discrete Element Framework for Modeling the Mechanical Behavior of Snow

10:40   Anna Tsynaeva (Samara State Technical University), Ekaterina Tsynaeva (Samara State Technical University, Ulyanovsk State University)
Numerical Simulation of Indoor Microclimate Using Free Software

11:00   Elena Baymetova, Albina Gizzatullina (Kalashnikov ISTU), Maria Koroleva (Udmurt Federal Research Center of UB RAS), Olga Mischenkova, Fedor Puskarev, Alena Chernova (Kalashnikov ISTU)
Heat Load of Bimetallic Ribbed Tube

11:20   Break

11:30   Andrey Britov (ISP RAS), Andrey Epikhin (ISP RAS, Bauman Moscow State Technical University)
Numerical Modeling of Screw Propeller Hydrodynamics Using OpenFOAM

11:50   Igor Potapov (Far Eastern Branch of RAS), Andrey Epikhin (ISP RAS, Bauman Moscow State Technical University)
Numerical Modeling of Turbulent Stream Influence on Scoured Bed

SECTION MANAGEMENT OF DATA AND INFORMATION SYSTEMS `BLUE HALL`

10:00   Aleksandr Getman (ISP RAS), Maxim Goryunov, Andrey Matskevich, Dmitry Rybolovlev (Academy of the Federal Guard Service)
Methodology for Collecting a Training Dataset for an Intrusion Detection Model

10:20   Alexander Petrov (Ishlinsky Institute for Problems in Mechanics), Artem Sukhov, Ilias Sibgatullin (ISP RAS)
Laminar Flow of Viscous Fluid Around Elliptic Contours At An Incidence

12:30   Break

12:40   Artem Nuriev (Kazan Federal University), Airat Kamalutdinov (Kazan National Research Technical University)
Aerohydrodynamics of a Flapping Cylindrical Wing of a Circular Cross-Section

13:00   Dmitry Kononov, Vladimir Gidaspov (Moscow Aviation Institute), Sergei Strijhak (ISP RAS)
Implementation of Kinetic Mechanisms of Methane Combustion by Example of Expanding Functionality of Physicochemical Libraries in Conjunction with react-ingpimplecentralfoam Solver

13:20   Matvey Kraposhin, Aleksandr Kukharskii, Alexander Shevelev (ISP RAS)
A Hybrid Two-Phase Solver with Acoustically-Conservative Interface Discretisation

13:40   Buffet lunch

14:20   Vitaliy Grigoryev, Olga Stoyanovskaya (Lavrentyev Institute of Hydrodynamics), Anastasiya Suslenkova (Novosibirsk State University), Nikolay Snytnikov (Institute of Computational Mathematics and Mathematical Geophysics), Maksim Davydov (Lavrentyev Institute of Hydrodynamics)
Modeling Dynamic of Two-Phase Polydisperse Medium with Intensive Interphase Exchange Based on the Openfpm Library: Verification and Parallel Implementation

14:40   Daria Romanova (Moscow State University, ISP RAS), Sergei Strijhak (ISP RAS)
ML-Turbulence Model Development for Non-Newtonian Media Slope Flows Simulations

15:00   Maxim Kudrov (MIPT University), Aleksey Miller (Central Aerohydrodynamic Institute), Kirill Vatutin, Matvey Kraposhin (ISP RAS), Valeria Melnikova, Sofya Sautkina (ISP RAS, Bauman Moscow State Technical University), Alexey Morozov (MIPT University), Alexandr Shevelev (ISP RAS)
Development of the flagmanFoam Solver for Modeling Aircraft Icing in Conditions of Small Droplet Inflow

15:20   Andrey Popov (Bauman Moscow State Technical University), Ilia Marchevsky (ISP RAS), Georgy Serbin (Bauman Moscow State Technical University)
Validation of a Newly Developed Implementation of the PFEM-2 Method Using an Open-Source Framework

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10:40   Evgeny Ivashko, Ilya Chernov (Institute of Applied Mathematical Research of Karelian Research Centre of RAS, Petrozavodsk State University)
Search for an Object with a Recognition Error Probability in a Desktop Grid Environment

11:00   Tatiana Ozerova, Elena Aksenova, Oleg Borisenko, Matvey Kraposhin, Eshsou Khashba (ISP RAS)
Slurm Paas in a Cloud Environment for Development and Debug Purposes

11:20   Break

11:40   Yaroslav Igoshev (Intel)
Efficient Data Science with Modin

12:00   Andrey Grabovoy (MIPT University, Antiplagiat), Oleg Bakhteev, Yury Chehovich (Antiplagiat)
An Automatic Approach for Scientific Papers Dating

12:20   Anastasia Tretiak, Valeria Efimova, Viacheslav Shalamov, Andrey Filchenkov (ITMO University)
Template-Based Generation of Entertaining Illustrations for News Publication in Social Media Using Deep Neural Networks

12:40   Andrey Sakhovskiy (Moscow State University, Kazan Federal University), Elena Tutubalina (Kazan Federal University, Higher School of Economics, Sber AI)
Cross-Lingual Transfer in Drug-Related Information Extraction from User-Generated Texts

13:00   Angelina Bolshina (Moscow State University), Natalia Loukachevitch (Research Computing Center of Moscow State University)
Weakly Supervised Word Sense Disambiguation Using Automatically Labelled Collections

SECTION TECHNOLOGIES OF PROGRAM ANALYSIS, MODELING AND TRANSFORMATION `GREEN HALL`

09:20   Vladimir Frolov (Keldysh Institute of Applied Mathematics), Vadim Sanzharov (Keldysh Institute of Applied Mathematics, Moscow State University), Vladimir Galaktionov (Keldysh Institute of Applied Mathematics), Alexandr Scherbakov (Moscow State University)
Development in Vulkan: a Domain-Specific Approach

09:40   Eugene Sharygin, Michael Pantilimonov, Ruben Buchatskiy (ISP RAS)
Specializing PostgreSQL Expression Interpreter with Code Annotations

10:00   Viacheslav Barinov, Andrei Kazmin (Samsung R&D Institute Russia)
Applying GCC-Based Hardware-Assisted Address Sanitizer Dynamic Analysis Technology to Tizen OS

10:20   Mikhail Krasnov, Olga Feodoritova (Keldysh Institute of Applied Mathematics)
Using the Functional Programming Library for Solving Numerical Problems on Graphics Accelerators with CUDA Technology

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10:40   Alexander Kozachok, Andrey Spirin, Vasiliy Kozachok (Academy of the Federal Guard Service), Daria Lavrova (Peter the Great St.Petersburg Polytechnic University)
Information Leakage Prevention Based on the Separation of Encrypted and Compressed Data

11:00   Alexey Vishnyakov (ISP RAS), Vlada Logunova (ISP RAS, MIPT University), Eli Kobrin (ISP RAS, Moscow State University), Daniil Kuts (ISP RAS), Darya Parygina (ISP RAS, Moscow State University), Andrey Fedotov (ISP RAS)
Symbolic Security Predicates: Hunt Program Weaknesses

11:20   Break

11:40   Alexander Evgin, Mikhail Solovyev, Vartan Padaryan (ISP RAS)
Model and Declarative Specification Language of Binary Data Formats

12:00   Hayk Aslanyan, Hovhannes Movsisyan, Mariam Arutunian, Sevak Sargsyan (Russian-Armenian University, Yerevan)
Bin2Source: Matching Binary to Source Code

12:20   Alexey Nurmukhametov, Alexey Vishnyakov (ISP RAS), Vlada Logunova (ISP RAS, MIPT University), Shamil Kurmangaleev (ISP RAS)
MAJORCA: Multi-Architecture JOP and ROP Chain Assembler

12:40   Alexey Makarov, Roman Kovalenko (ISP RAS)
An IoT System Dynamic Analysis Based on Full-System QEMU Emulation

13:00   Georgy Savidov (ISP RAS, Moscow State University), Andrey Fedotov (ISP RAS)
Casr-Cluster: Crash Clustering for Linux Applications

13:20   Alexander Novikov (ISP RAS)
An Approach for Finding Advantageous Branches

13:40   Buffet lunch

14:20   Petr Devyanin, Vladimir Telezhnikov (RusBITech-Astra), Alexey Khoroshilov (ISP RAS, Moscow State University, MIPT University, Higher School of Economics)
Building a Methodology for Secure System Software Development on the Example of Operating Systems

14:40   Mikhail Krichanov, Vitaly Cheptsov (ISP RAS)
UEFI Virtual Machine Firmware Hardening Through Snapshots and Attack Surface Reduction

15:00   Alexei Nedoria (Huawei)
Developing a Type System for an Application Programming Language

15:20   Sergey Prokopev (ISP RAS, NPK Kryptonite)
A Formal Language for Primary Specifications of the Cryptographic Protocols

15:40   Ekaterina Lavrischeva, Alexander Petrenko (ISP RAS)
Modeling Operation, Program, and Technical Systems in the RFBR Projects of 2016 and 2019

16:00   Break

16:20   Maksim Raenchuk (ISP RAS, Moscow State University), Vitaly Cheptsov (ISP RAS), Alexey Khoroshilov (ISP RAS, Moscow State University)
Cross-Platform Graphics Subsystem for an ARINC 653-Compatible Real-Time Operating System

16:40   Evgenii Vinarskii (ISP RAS, Higher School of Economics), Alexey Demakov (ISP RAS)
Optimization of ProVerif Programs for AKE-Protocols

17:00   Alexey Kanatov, Eugene Zouev (Innopolis University)
A Unified Type System for the Modern General-Purpose Programming Language Focusing on Reliability and Verifiability

17:20   Petr Sovetov (MIREA — Russian Technological University)
Algorithms for Custom Instruction Synthesis to Reduce Both the Code Size and the Number of Generated Instructions

17:40   Vladimir Roganov (Malt System)
Static Analysis, Dynamic Generation and Cooperative Code Vectorization for Heterogeneous Many-Core Processors