2017 Ivannikov ISPRAS Open Conference (ISPRAS 2017)

Moscow, Russia 30 November – 1 December 2017



IEEE Catalog Number: CFP17N36-POD ISBN: 978-1-5386-1133-3

Copyright \odot 2017 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP17N36-POD

 ISBN (Print-On-Demand):
 978-1-5386-1133-3

 ISBN (Online):
 978-1-5386-1132-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



2017 Ivannikov ISPRAS Open Conference (ISPRAS) ISPRAS 2017

Table of Contents

Preface vii Conference Committees is
Technologies of Program Analysis, Modeling and Transformation
System-Wide Elimination of Unreferenced Code and Data in Dynamically Linked Programs
Non-Local Correction of Process Models Using Event Logs
Modeling of the Memory Management Process for Dynamic Work-Stealing Schedulers
Anxiety: A Dynamic Symbolic Execution Framework
Dynamic Diluted Taint Analysis for Evaluating Detected Policy Violations
Automatic Dynamic Binary Translator Generation from Instruction Set Description
Scalable Framework for Accurate Binary Code Comparison
Tizen .NET Memory Profiler

Applying GCC-Based Address Sanitizer Dynamic Analysis Technology to Tizen OS
M-M/S-CD Memory Management: Conceptual and System Models
Management of Data and Information Systems
Transfer Learning for Morphological Tagging in Russian
A Machine Learning Approach to Classification of Drug Reviews in Russian
Coreference Resolution for Russian: Taking Stock and Moving Forward
Distributed Generation of Mobile Call Graphs with DPLN Degree Distribution
Reproducing Network Structure: A Comparative Study of Random Graph Generators
Open Source Software in Continuum Mechanics Problem Solving
Direct Numerical Simulation of Helical Magnetohydrodynamic Turbulence with TARANG Code 90 Rodion Stepanov (Institute of Continuous Media Mechanics), Andrei Teimurazov (Institute of Continuous Media Mechanics), Valerij Titov (Institute of Continuous Media Mechanics), Mahendra K. Verma (Indian Institute of Technology), Satyajit Barman (Indian Institute of Technology), Abhishek Kumar (Indian Institute of Technology), and Franck Plunian (Universite Grenoble Alpes)
Open Source Code for 2D Incompressible Flow Simulation by Using Meshless Lagrangian Vortex Methods
Numerical Modeling of Jellyfish Galaxy at Intel Xeon Phi Supercomputers

Assessment of Turbulent Wake Behind two Wind Turbines Using Multi-Fractal Analysis	10
Development of OpenFOAM Solver for Compressible Viscous Flows Simulation Using Quasi-Gas Dynamic Equations	17
Matvey V. Kraposhin (Lomonosov Moscow State University), Daniil A. Ryazanov (Lomonosov Moscow State University), Elena V. Smirnova (Ivannikov Institute for System Programming of Russian Academy of Sciences), Tatiana G. Elizarova (Keldysh Institute of Applied Mathematics (Russian Academy of Sciences)), and Maria A. Istomina (Keldysh Institute of Applied Mathematics (Russian Academy of Sciences))	,
Investigating the Problems of Ship Propulsion on a Supercomputer	24
Comparative Study of the Accuracy for OpenFOAM Solvers	32
Direct Numerical Simulation of Three-Dimensional Inertial Wave Attractors	37
Dmitriy P. Silaev (NEP Ltd), Sergey A. Kharchenko (NEP Ltd), A. Ilyin Viacheslav (ilyin0048@gmail.com), Andriy V. Pechenyuk (Digital Marine Technology), Evgeny A. Ryabinkin (NRC Kurchatov Institute), and Vasily E. Velikhov (NRC Kurchatov Institute) Comparative Study of the Accuracy for OpenFOAM Solvers Artem E. Kuvshinnikov (Keldysh Institute of Applied Mathematics) and Alexander E. Bondarev (Keldysh Institute of Applied Mathematics) Direct Numerical Simulation of Three-Dimensional Inertial Wave Attractors Ilias Sibgatullin (Moscow Lomonosov State University), Evgeny Ermanyuk (Lavrentyev Institute of Hydrodynamics), Leo Maas (Institute for Marine and Atmospheric research Utrecht), Xiulin Xu (Moscow Lomonosov State University), and Thierry Dauxois (Univ Lyon)	