

2022 Ivannikov Ispras Open Conference (ISPRAS 2022)

**Moscow, Russia
1-2 December 2022**



**IEEE Catalog Number: CFP22N36-POD
ISBN: 979-8-3503-9854-0**

**Copyright © 2022 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: | CFP22N36-POD |
| ISBN (Print-On-Demand): | 979-8-3503-9854-0 |
| ISBN (Online): | 979-8-3503-9853-3 |
| ISSN: | 2767-9519 |

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

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

| | |
|--|----|
| Interprocedural static analysis for Go with closure support <i>Alexey Borodin, Varvara Dvortsova, Alexander Volkov*</i> | 1 |
| Using Lingvodoc platform for researching genetic and areal semantic shifts: the case of Ob-Ugric basic vocabulary <i>Idaliya Fedotova</i> | 7 |
| Kernel slicer: high-level approach on top of GPU programming API <i>Vladimir Frolov, Vadim Sanzharov, Vladimir Galaktionov</i> | 11 |
| Devirtualization for static analysis with low level intermediate representation <i>Artemiy Galustov, Alexey Borodin, Andrey Belevantsev</i> | 18 |
| A Method of Multilingual Summarization for Scientific Documents <i>Kirill Grashchenkov, Andrey Grabovoy, Ildar Khabutdinov</i> | 24 |
| Graph Neural Network for Crawling Target Nodes in Social Networks <i>Kirill Lukyanov, Mikhail Drobysheskiy, Danil Shaikhelislamov, Denis Turdakov</i> | 31 |
| Applicability of several free software tools for solving problems of compressible gas dynamics <i>Andrei Makhnov, Elizaveta Kolesnik, Alexander Smirnovsky, Elena Babich, Daniil Osadchiy</i> | 37 |
| Detecting anomalous device loads during exploratory testing of mobile applications <i>Danila Mikhaltsov, Konstantin Sorokin</i> | 43 |
| Using Lingvodoc platform for researching genetic and areal semantic shifts: the case of Ob-Ugric basic vocabulary <i>Julia V. Normanskaya</i> | 50 |
| A Case Study of Valency Patterns for Motion Verbs in Vakh Khanty by Means of Lingvodoc <i>Irina Novitskaya, Victoria Vorobeva</i> | 57 |
| Analytical and numerical methods for Zhukovsky airfoils aerodynamics coefficients <i>A.G. Petrov, A.D. Sukhov, I.N. Sibgatullin, A.D. Britov</i> | 62 |
| Anti-Distillation: Knowledge Transfer from a Simple Model to the Complex One <i>Kseniia Petrushina, Oleg Bakhteev, Andrey Grabovoy, Vadim Strijov</i> | 65 |
| Bottom material entrainment in 3D simulations of flows on mountain slopes in open-source solver avalancheFoam <i>Daria Romanova, Margarita Eglit</i> | 70 |
| Boundary integral equation solving in vortex method using the Barnes-Hut/multipole algorithm <i>Evgeniya Ryatina, Iliia Marchevsky, Alexandra Kolganova</i> | 74 |
| Improving fuzzing efficiency based on extracted constant values <i>Sevak Sargsyan, Jivan Hakobyan, Lyudovikos Nersisyan, Karen Sargsyan, Vahagn Melkonyan</i> | 81 |
| Finetuning BERT on Partially Annotated NER Corpora <i>Viktor Scherbakov, Vladimir Mayorov</i> | 86 |
| Gray Code Arithmetic for Clock Domains Transfer <i>Mikhail Sheblaev, Rodion Erokhin</i> | 92 |

| | |
|---|-----|
| Research on automatic generation of fuzz-target for software library functions <i>Chi Thien Tran, Dmitry Ponomarev, Andrey Kuznhesov</i> | 95 |
| A Dataset for Information Extraction from News Web Pages <i>Maksim Varlamov, Denis Galanin, Pavel Bedrin, Sergey Duda, Vladimir Lazarev, Alexander Yatskov</i> | 100 |
| Ensemble of Logistic Regression Models for Voice Settings of Virtual Pedagogical Agent <i>A.N. Varnavsky</i> | 107 |
| Sydr-Fuzz: Continuous Hybrid Fuzzing and Dynamic Analysis for Security Development Lifecycle <i>Alexey Vishnyakov, Daniil Kuts, Vlada Logunova, Darya Parygina, Eli Kobrin, Georgy Savidov, Andrey Fedotov</i> | 111 |
| Comparative analysis of non/ductedpropeller under the influence of vertical wall <i>Mengfei Wang, QingXu, Qin Zhang, Andrey Epikhin, Bingchen Liang</i> | 124 |
| Analysis of wake around DARPA Suboff including self-propulsion with a seven-blade propeller in positive pitches <i>Xinyu Wang, Qin Zhang, Yingfan Qin, Tianyuan Wang, Zhicheng Wang, Andrey Epikhin</i> | 130 |
| Docmarking: Real-Time Screen-Cam Robust Document Image Watermarking <i>Aleksey Yakushev, Yury Markin, Dmitry Obydenkov, Alexander Frolov, Stas Fomin, Manuk Akopyan, Alexander Kozachok, Arthur Gaynov</i> | 142 |
| Author Index | 151 |