



TECHNISCHE
UNIVERSITÄT
DRESDEN



INTERNATIONAL CENTER
FOR COMPUTATIONAL LOGIC



NCFU NORTH-CAUCASUS
FEDERAL
UNIVERSITY

I I T T
Institute of Information Technology
and Telecommunications

PROGRAM



Young Scientist's Third International Workshop on Trends in Information Processing

Technische Universität Dresden
Dresden (Germany)

North Caucasus Federal University
Stavropol (Russia)

September 17-20, 2019
Stavropol – Arkhyz, Russia

YSIP-2019

**Technische Universität Dresden
Dresden (Germany)**

**North-Caucasus Federal University
Stavropol (Russia)**

**International Young Scientist's
Third International Workshop
on Trends in Information Processing**

**September 17-20, 2019
Stavropol – Arkhyz, Russia**

YSIP-2019

PROGRAM COMMITTEE

Co-Chairs of the Program Committee:

- **Steffen Hölldobler**, Technische Universität Dresden, Dresden, Germany
- **Andrey Malikov**, North-Caucasus Federal University, Stavropol, Russia

The members of the Program Committee:

- **Isara Anantavrasilp**, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand
- **Maxim Bakaev**, Novosibirsk State Technical University, Novosibirsk, Russia
- **Alexander Chefranov**, Eastern Mediterranean University, Famagusta, Turkey
- **Khang Tran Dinh**, Hanoi University of Science and Technology, Hanoi, Vietnam
- **Uwe Egly**, Technische Universität Wien, Vienna, Austria
- **Anna Fensel**, University of Innsbruck, Innsbruck, Austria
- **Oleg Finko**, Kuban State Technological University, Krasnodar, Russia
- **Ulrich Furbach**, Universität Koblenz-Landau, Koblenz, Germany
- **Alex Rayón Jerez**, University of Deusto, Bilbao, Spain
- **Evgeny Kharlamov**, University of Oslo and Bosch AI center, Oslo, Norway and Renningen, Germany
- **Maja Hanne Kirkeby**, Roskilde University, Roskilde, Denmark
- **Matthias Knorr**, Universidade NOVA de Lisboa, Lisbon, Portugal
- **Evgeny Kostyuchenko**, Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia
- **Maria Lapina**, North-Caucasus Federal University, Stavropol, Russia
- **Massimo Mecella**, Sapienza - Università di Roma, Rome, Italy
- **Oksana Mezentseva**, North-Caucasus Federal University, Stavropol, Russia
- **Evgeny Nikolaev**, North-Caucasus Federal University, Stavropol, Russia

- **Sergey Paramonov**, KU Leuven, Leuven, Belgium
- **Denis Parfenov**, Orenburg State University, Orenburg, Russia
- **Peter Peer**, University of Ljubljana, Ljubljana, Slovenia
- **Vyacheslav Petrenko**, North-Caucasus Federal University, Stavropol, Russia
- **Josef Schneeberger**, University of Applied Science Deggendorf, Deggendorf, Germany
- **Zykin Sergey**, laboratory of methods for transforming and presenting information Siberian Branch of the Russian Academy of Sciences, Russia
- **Nafisa Yusupova**, Ufa State Aviation Technical University, Ufa, Russia

Responsible for organizing the workshop:

- **Maria Lapina**, North-Caucasus Federal University, Stavropol, Russia

Responsible for papers submission and processing:

- **Johannes Fichte**, Technische Universität Dresden, Dresden, Germany

SCIENTIFIC PROGRAM

Day 1. September 17, 2019, Stavropol,
North-Caucasus Federal University

8.40 – 9.00 Registration (3th floor, building 10, 2, Pr. Kulakova, Stavropol)

9:00 – 9:20 Opening Ceremony of Workshop

Pro-Rector for Scientific Activities:

Prof. Vitaly Belozarov, North-Caucasus Federal University, Russia

Co-Chairs of the Program Committee:

Steffen Hölldobler, Technische Universität Dresden, Germany

Andrey Malikov, North-Caucasus Federal University, Russia

9:20 – 10:10 Invited Talk

Alexandre Frazão, Ricardo Maltez, Rúben Caceiro, **Carlos Grilo**,
José Ribeiro

Polytechnic of Leiria, Portugal

*Smart Time: a Context-Aware Conversational Agent for Suggesting Free
Time Activities*

10:10 – 10:40 Coffee break

10:40 – 11:55

Gennady Linets, **Sergey Melnikov**, Alexander Isaev and Michael Isaev
North-Caucasus Federal University, Russia

*Optimizing Classification Thresholds of Status of Transionospheric
Communication Channel Distributed According Rayleigh Distribution Law
for Decreased Quadrocopter's Positioning Errors*

These research were carried out with the support of the scientific project
«Development of a multi-rotor robotic automatically autopiloted vehicle using a
strap-down inertial navigation system» of the Federal Target Program for 2014-2020
(unique identifier RFMEFI57818X0222) with financial support from
the Ministry of Science and the Higher Education of Russia

Sebastian Heil, **Maxim Bakaev** and Martin Gaedke

Technische Universität Chemnitz, Germany

Novosibirsk State Technical University, Russia

Chemnitz University of Technology, Germany

*Assessing Completeness in Training Data for Image-Based Analysis of
Web User Interfaces*

Igor Kalmykov, Maria Lapina, **Maxim Kalmykov**, Igor Provornov and
Evgeniy Voloshin

North-Caucasus Federal University, Russia

*Development of Imitation-resistable Authentication Protocol for Low-
orbital Space Satellite Communication System*

11:55 – 12:45 Campus Tour (NCFU)

12:45 – 14:00 Lunch (NCFU-Buffer)

14:00 – 18:00 Trip to Arkhyz

Day 2. September 18, 2019, Arkhyz

9:30 – 10:20 Invited talk

Hong-In Cheng,

Kyungshung University, South Korea

Information based smart decisions

10:20 – 11:10

Vyacheslav Petrenko, Fariza Tebueva, Vladislav Sychkov, Mikhail Kabinyakov and **Nikolai Untevsky**

North-Caucasus Federal University, Russia

Mathematical Method of Mapping the Master Manipulator of the Copying Type Configuration Space to the Slave Manipulator Configuration Space

Marcos Cramer, Zohreh Baniyadi and Pieter Van Hertum

Technische Universität Dresden, Germany

Luxembourg University, Luxembourg

Katholieke Universiteit Leuven, Belgium

The Knowledge Base Paradigm Applied to Delegation Revocation

11:10 – 11:40 Coffee break

11:40 – 13:20

Roman Nemkov, **Viktoria Berezina,** Dmitry Mezentsev and

Oksana Mezentseva

North-Caucasus Federal University, Russia

Dropout and Dynamic Receptive Fields Used as a Way of Neurons Coadaptation Struggle in Convolutional Neural Networks

Aleksandr Chistyakov and **Sofya Protsenko**

Don State Technical University, Russia

Improvement of Numerical Solution Smoothness for the Hydrodynamics Problems Modeling on Rectangular Grids

Fariza Tebueva, Dmitry Osipov, Sergey Ryabtsev and **Igor Struchkov**

North-Caucasus Federal University, Russia

Development of a Server Software Module for Protected Data Sharing on the Internet

Fariza Tebueva, Alexander Rosenko, **Valery Nechvoloda** and Valentina Smykova

North-Caucasus Federal University, Russia

Development of a Method and Software Module for Assessing the Information Protection of Restricted Distribution

13:20 – 18:00 Lunch & Excursion: Ancient temples of the 10th century

Day 3. September 19, 2019, Arkhyz

9:30 – 10:20 Invited talk

Nafisa Yusupova, Konstantin Mironov

Ufa State Aviation Technical University, Russia

Intelligent analysis of medical and psychophysiological data

10:20 – 11:10

George Aliev, **Oleg Malsugenov** and Oksana Mezentseva

North-Caucasus Federal University, Russia

Examination of Distribution Regularities in Static RAM Microcircuit Cells in Case of Using Them as a Physically Unclonable Function in a Mutual Authentication Module

Marina Murtazina and **Tatiana Avdeenko**

Novosibirsk State Technical University, Russia

Requirements Analysis Based on the Ontological and Production Models

11:10 – 11:40 Coffee break

11:40 – 13:20

Elena Basan, Maria Lapina, Dmitry Orel

Southern Federal University, North-Caucasus Federal University, Russia

Host-based Method and System for Detecting Anomalies in Network Traffic for a Robotic System

Philipp Samoilov, Dmitry Vinokursky, Marco Schaerf and Massimo Mecella

Sapienza Università di Roma, Italy, North-Caucasus Federal University, Russia *Autonomous Flight of a Quadcopter Group with the Use of the Virtual Leader Strategy*

Alexander Sukhinov and **Sofya Protsenko**

Don State Technical University, Russia

Long Waves Simulation in Coastal Systems Using Parallel Computational Technologies

Kamil Khadiev, **Ilnaz Mannapov** and **Liliya Safina**

Kazan Federal University, Russia

The Quantum Version of Classification Decision Tree Constructing Algorithm C5.0

Dmitriy Bukhanov, Vladimir Polyakov, **Ilya Kalgov** and Margarita Redkina: Belgorod State Technological University named after V.G. Shukhov, Russia

WEB Platform for Modeling Network Activity Based on Docker Container Virtualization Technology

13:20 – 18:00 Lunch and Excursion
The confluence of the Arkhyz River and the Psych River

Day 4. September 20, 2019, Arkhyz

9:30 – 10:20

Ekaterina Pakulova, Dmintry Poleshnikov and Oleg Basov

Southern Federal University, Russia

ITMO University, Russia

Research on Dependences of Speech Pitch Parameters on Pulse and Heartbeat Signals

Alexander Sukhinov, **Yulia Belova** and Alena Filina

Don State Technical University, Russia

«Supercomputers and Neurocomputers Research Center» Co. Ltd.

Parallel Implementation of Substance Transport Problems for Restoration the Salinity Field Based on Schemes of High Order of Accuracy

10:20 – 10:50 Coffee Break

10:50 – 11:40

Alexander Driaba, Aleksei Gordeev and Vladimir Kliachin

Volgograd State University, Russia

Recognition of Various Objects from a Certain Categorical Set in Real Time Using Deep Convolutional Neural Networks

Eldar Kurbanov, Aleksei Gordeev and Vladimir Kliachin

Volgograd State University, Russia

Recognition of Faces, Head Positions, Gender, Age, and Emotions in Real Time Using Deep Convolutional Neural Networks

11:40 – 12:00 Official Ending

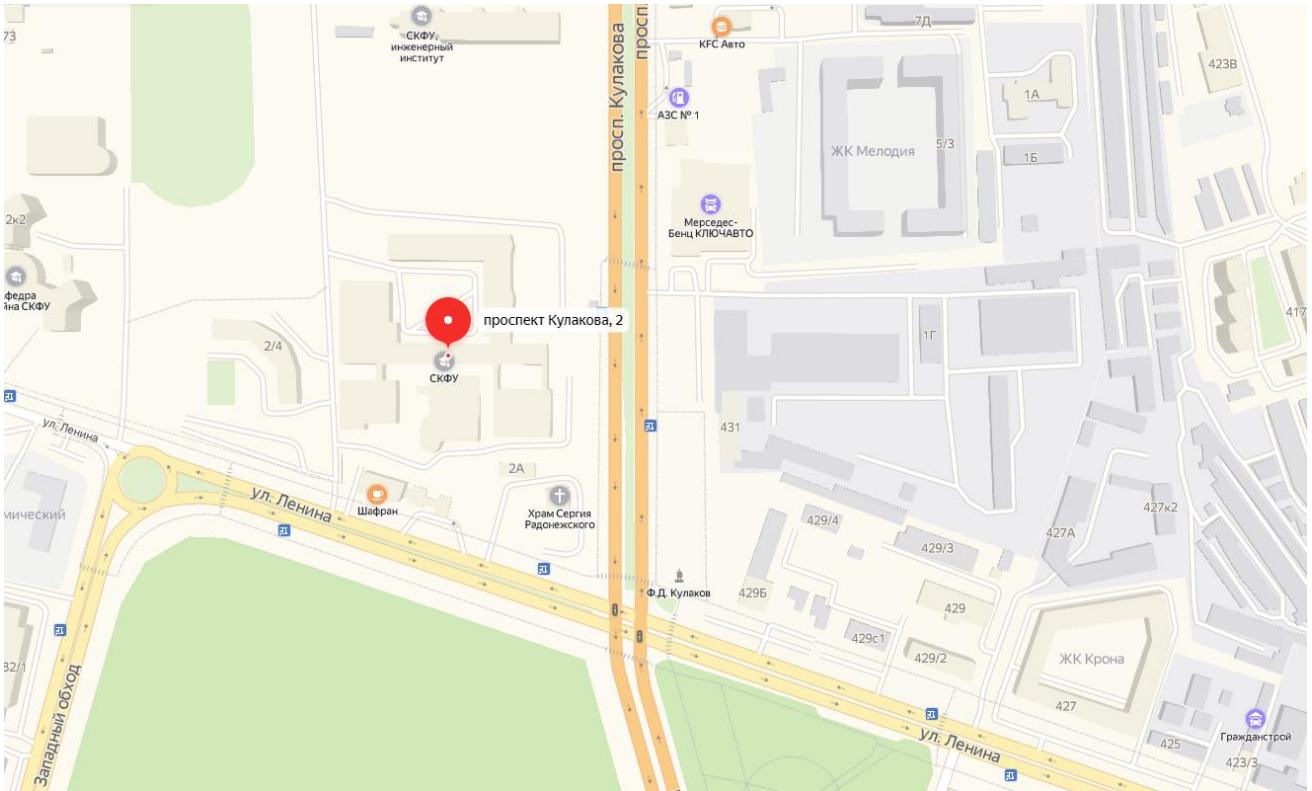
12:00 – 18:00 Lunch and return to Stavropol

**Workshop activity in Stavropol will take place in
the North-Caucasus Federal University.**

Address: 2, Pr. Kulakova, Stavropol, Russia

Conference room (3rd floor)

www.ncfu.ru



An individual password for access to a wireless Wi-Fi network in all buildings of the NCFU is provided to conference participants during registration.

Workshop activity in Arkhyz will take place in [Hotel «Kavkaz»](#)



YSIP-2019

Stavropol – Arkhyz, Russia



Contact:

Steffen Hölldobler

International Center for Computational Logic
Technische Universität Dresden
Dresden, Germany
email: sh@iccl.tu-dresden.de

Andrey Malikov

Institute of Information Technologies
and Telecommunications
North-Caucasus Federal University
Stavropol, Russia
email: amalikov@ncfu.ru

Executive Secretary

Maria Lapina

Institute of Information Technologies
and Telecommunications
North-Caucasus Federal University
Stavropol, Russia
e-mail: mlapina@ncfu.ru
phone: +7-918-761-00-38