Program of ITNT-2021

VII International Conference on Information Technology and Nanotechnology

20-24 September 2021
Samara, Russia

The VII International Conference on Information Technology and Nanotechnology (ITNT-2021) takes place in Samara (Russia) from September 20th to 24th, 2021. The Conference is intended to provide a forum for leading scientists from all over the world to discuss the latest advances in the basic and applied research in the field of Information Technology, Nanotechnology, and Artificial Intelligence, attract young people to advanced scientific research, and share the latest trends in training and research programs for future ITNT specialists.

Organizers

Scientific educational center "Engine The Future"

Samara National Research University named after S.P. Korolev (Samara University)

Image Processing Systems Institute – Branch of the Federal Scientific Research Centre "Crystallography and Photonics" of the Russian Academy of Sciences (IPSI RAS- branch of FSRC "Crystallography and Photonics" RAS)

Suppoters

IMC Group

Partners

IEEE

Huawei

NVidia

LLC Computer Technologies

Media-Partners

Computer Optics

Journal Photonics

Journal of Biomedical Photonics and Engineering

Sensors

Journal Nanoindustry

Conference Venue

The ITNT-2021 is held in the 1st building of the Samara University.
Address: Molodogvardeyskaya st. 151, Samara, Russia
In 2021, ITNT partly moved to online. Additional details on the Website.

<p style="text-align:center">**Conference topics**</p>

Section 1 "Computer Optics and Nanophotonics"

- Diffraction Optics (Design of Diffractive Optics Elements, Modeling of Diffractive Optics Elements, Manufacturing Technology of Diffraction Optics Elements, Optical Micromanipulation);
- Planar Optical Structures (Waveguides, Photonic Crystals, Resonance Structures, Bragg Gratings);
- Optical Imaging Systems (Optical Calculations, Modeling of Optical Imaging Systems);
- Hyperspectral Imaging Systems (Construction of Hyperspectral Imaging Systems, Dispersion Elements, Spectral Filters);
- Nanophotonics (Elements of Nanophotonics, Technologies for Manufacturing Nanophotonics Elements);
- Fiber Optics (Modeling of Fiber Optics, Fiber Optics Manufacturing Technology, Atmospheric Optical Communication Systems).

Section 2 "Information Technologies for Earth Remote Sensing and Image Processing"

- Digital Image Processing (Filtering, Enhancement, Color Mapping, Compression, Spectral Transformations and Invariants);
- Visual Recognition and Retrieval (Segmentation, Clusterization, Classification, Retrieval, Feature Extraction and Selection, Descriptors, Dimensionality Reduction);
- Motion Analysis (Object Detection and Tracking, Face, Gesture and Action Recognition);
- Scene Reconstruction (3D Vision, Shape or Relief Reconstruction, Registration, Geometry Transformation);
- Remote Sensing Image Processing and Analysis (Geometric and Radiometric Correction, Mosaic, Classification, Dimensionality Reduction, Spectral Unmixing, Change Detection, Anomaly Detection, Data Fusion);
- Multimedia Protection and Information Hiding (Watermarking, Authentication, Forgery Detection, Steganography, Steganalysis);
- Geoinformatics (Vectorization, Tracing, Geospatial Analysis and Modeling).

Section 3 "Artificial Intelligence and Data Science"

- Fundamental Results in Data Science (New Methods and Algorithms for Data Analysis, Classification, Clustering, Regression, Dimensionality Reduction, Density Estimation, Rank Analysis);
- Artificial Intelligence Technologies for Data Analysis (Neural Networks, Deep Learning, Big Data);

- Software Tools for Artificial Intelligence (Platforms, Libraries, Hardware, Parallel Algorithms, Cloud Computing);
- Applied Analysis of Experimental Data (Applied Problems Of Data Mining In Medicine, Biology, Physics, Chemistry, Economics, Humanities, etc.).

Programm Committee

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Programm Committee Vice-Chair

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Yakimov P. Yu. – Dr., Samara National Research University, Samara, Russia;

Yakunenkova D.M. – Image Processing Systems Institute of RAS – Branch of the FSRC "Crystallography and Photonics" RAS, Samara, Russia.

Conference Schedule

Time zone: Samara (GMT +4)

20 September		21 September		22 September		23 September		24 September	
09:00-11:00	*Registration*	09:30-11:00	*Plenary Session*	09:30-11:00	*Plenary Session*	09:00-11:00	*Plenary Session*	09:00-11:00	*Plenary Session*
11:00-11:40	*Opening Ceremony*	11:00-11:10	*Break*	11:00-11:10	*Break*	11:00-11:10	*Break*	11:00-11:10	*Break*
11:10-12:40	*Plenary Session*	11:10-12:40	*Plenary Session*	11:10-12:10	*Plenary Session*	11:10-12:40	*Plenary Session*	11:10-12:40	*Plenary Session*
				12:10-12:30	*Lunch break*				
12:40-13:10	*Lunch break*	12:40-13:10	*Lunch break*	12:30-13:00	*Plenary Session*	12:40-13:10	*Lunch break*	12:40-13:10	*Lunch break*
				13:00-13:10	*Break*				
13:10-14:40	*Oral Session*	13:10-14:40	*Oral Session*	13:10-14:40	*Oral Session*	13:10-14:40	*Oral Session*	13:10-14:40	*Oral Session*
14:40-14:50	*Break*	14:40-14:50	*Break*	14:40-14:50	*Break*	14:40-14:50	*Break*	14:40-14:50	*Break*
14:50-16:20	*Oral Session*	14:50-16:20	*Oral Session*	14:50-16:20	*Oral Session*	14:50-16:20	*Oral Session*	14:50-15:10	*Closing Ceremony*
16:20-16:30	*Break*	16:20-16:30	*Break*	16:20-16:30	*Break*	16:20-16:30	*Break*		
16:30-18:00	*Poster session*	16:30-18:30	*Rounnd table Session*	16:30-17:30	*Plenary Session*	16:30-18:30	*Rounnd table Session*		

The Plenary Session talks, as well as the talks from Oral Sections, will be available for discussion during their presentation according to the Conference Schedule.

You can look through the talks posted as Posters at Miro-service during the whole time of the Conference. If you want to ask the authors, please, follow the links and put your question in the comments. You can also use the feedback form on our Website

Due to the hybrid format of the Conference, all oral sessions will be broadcast on the Conference's YouTube channel. The Zoom platform is used for remote participation in the Conference. Plenary sessions allow for both face-to-face and online participation. All offline sessions will be held in the 1st building of the Samara University (Molodogvardeyskaya 151, Samara) according to the Conference schedule. Online sessions will only be held using Zoom conferences.

We ask you to carefully check the Program. Below are the parameters for connecting to online sections.

Zoom 1
Link: https://us02web.zoom.us/j/3133939114?pwd=cTJkbTcrSUZXQUsvMUFUU1JMNEpDZz09 ID Room: 313 393 9114 Access code: ITNT-2021
Zoom 2
Link: https://us02web.zoom.us/j/3577114355?pwd=UDI0MjZYVXZPQWo2YTFMdEtOdTF0UT09 ID Room: 357 711 4355 Access code: ITNT-2021
Zoom 3
Link: https://us02web.zoom.us/j/9419759460?pwd=by9RK2liQTV1UVdPOXE2RGdRRnpVZz09 ID Room: 941 975 9460 Access code: ITNT-2021
Zoom 4
Link: https://us05web.zoom.us/j/8424948533?pwd=Q21CSkhUc2lwbXR4cEc5SFZLL3hVUT09 ID Room: 842 494 8533 Access code: ITNT-2021
Zoom 5
Link: https://us05web.zoom.us/j/5531229165?pwd=U3NzRGRhNUE2U05JL0xuQU1IbUZidz09 ID Room: 553 122 9165 Access code: ITNT-2021

203 202 WC 231

204 **220** 219 218

205 Commitee 206 121

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208 Hall 214 213

209 210 COFFEE BREAK 212

Planetarium WC **321** **322**

307 223

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310a

3ᵈ Floor

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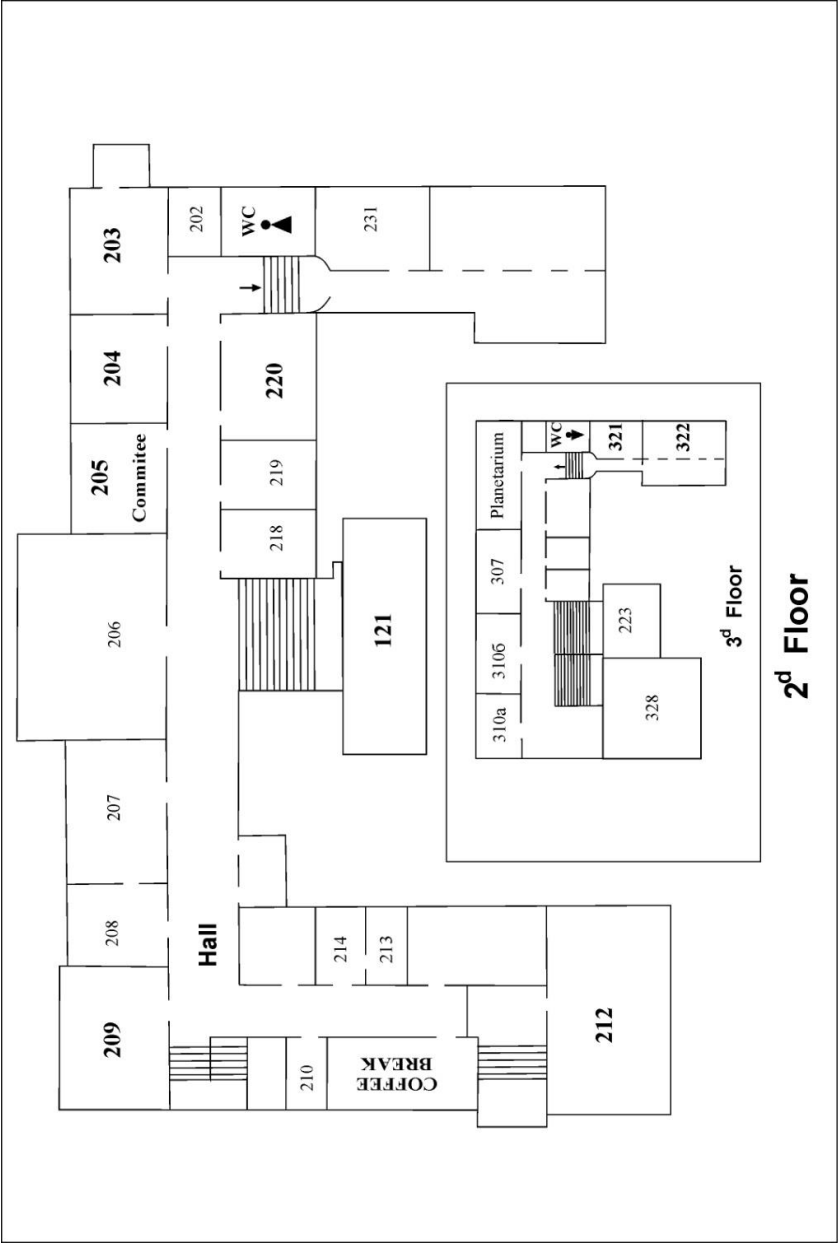
Plan of the building

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Program of the VII International Conference on Information Technology and Nanotechnology (ITNT-2021)

20 September (Monday)
Time zone: Samara (GMT +4)

09:00-11:00	**Registration** *building 1, Hall, 1st floor*
10:30-11:00	**Break**
11:00-11:40	**Opening of the Conference** *building 1, room 209 (Online: Zoom 1)*
11:40-12:40	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
11:40	**Academician of RAS, Prof. Igor Kaliaev** **(Southern Federal University, Russia)** *Artificial intelligence and supercomputer technologies*
12:10	**Prof. Shinji Hayashi** **(Kobe University, Japan)** *Photofunctional Fano resonances realized in multilayer structures*
12:40-13:10	**Lunch break**

	Oral Sessions		
13:10-14:40	*Section 1 "Computer Optics and Nanophotonics"* Track 1: offline room 209	*Section 2 " Information Technologies for Earth Remote Sensing and Image Processing"* Track 1: offline room 212	*Section 3 "Artificial Intelligence and Data Science"* Track 1: online Zoom 2 Track 2: online Zoom 3
14:40-14:50	**Break**		
	Oral Sessions		
14:50-16:20	*Section 1 "Computer Optics and Nanophotonics"* Track 1: offline room 209	*Section 2 "Information Technologies for Earth Remote Sensing and Image Processing"* Track 1: offline room 212	*Section 3 "Artificial Intelligence and Data Science"* Track 1: online Zoom 2 Track 2: online Zoom 3
16:20-16:30	**Break**		
16:30-18:00	**Poster Session** Online		

Program of the VII International Conference on Information Technology and Nanotechnology (ITNT-2021)

21 September (Tuesday)
Time zone: Samara (GMT +4)

09:00-11:00	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
09:30	**Dr. Muhammad Ali Butt** **(Samara National Research University, Russia)** *Development of integrated sensing technology in the year 2015-2021 at Samara National Research University*
10:00	**Dr. Dmitry Nikolaev** **(The Institute for Information Transmission Problems of the RAS (Kharkevich Institute), Russia)** *Mathematical models for color*
10:30	**Prof. Kehar Singh** **(The NorthCap University, India)** *Optical Cryptography for Document Security: A Personal Tour (2014-2021)*
11:00-11:10	**Break**
11:10-12:40	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
11:10	**Prof. Alexander Gorban** **(Lobachevsky State University of Nizhni Novgorod, Russia)** *The world of postclassical data and the errors of artificial intelligence*
11:40	**Academician of RAS, Prof. Igor Sokolov** **(Federal Research Center Informatics and Management of the RAS, Russia)** *Training of highly qualified personnel in the field of artificial intelligence*
12:10	**Prof. Alexander Shkurinov** **(Lomonosov Moscow State University, Russia)** *Gas nano cluster media in terahertz photonics*
12:40-13:10	**Lunch break**

	Oral Sessions		
13:10-14:40	*Section 1 "Computer Optics and Nanophotonics"* Track 2: offline room 212 Track 3: online Zoom 4	*Section 2 "Information Technologies for Earth Remote Sensing and Image Processing"* Track 2: online Zoom 5	*Section 3 "Artificial Intelligence and Data Science"* Track 1: online Zoom 2 Track 3: online Zoom 3

14:00-16:00	**Workshop** *(Online)*
	Dmitry Mironov **(NVIDIA, Russia)** *Deep Learning at Scale with Horovod*
14:40-14:50	**Break**
14:50-16:20	**Oral Sessions**

	Section 1 "Computer Optics and Nanophotonics" Track 2: offline room 212 Track 3: online Zoom 4		*Section 3 "Artificial Intelligence and Data Science"* Track 1: online Zoom 2 Track 3: online Zoom 3
16:30-18:30	**Roundtable Session** *building 1, room 209 (Online translation)*		

Program of the VII International Conference on Information Technology and Nanotechnology (ITNT-2021)

22 September (Wednesday)
Time zone: Samara (GMT +4)

09:00-11:00	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
09:30	**Prof. Igor Sheremet** **(The Russian Foundation for Basic Research, Russia)** *"Set of Strings" Framework Application to Imperfect Data Fusion*
10:00	**Prof. Nikolay Gippius** **(Skoltech, Russia)** *Modern methods for describing resonant photonic structures*
10:30	**Dr. Ognian Ognianov** **(Sofia University "St. Kliment Ohridski", Bulgaria)** *3D Integration of UAS images and Terrestrial Laser Scanning of the Ground Surface and Underground Caverns*
11:00-11:10	**Break**
11:10-12:40	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
11:10	**Prof. Alexander Volyar** **(V.I. Vernadsky Crimean Federal University, Russia)** *Structured Light and Darkness in Spiral Vortex Beams*
11:40	**Prof. ValeriyLabunets** **(Ural Federal University, Russia)** *Fundamentals of the theory and application of fast nonlinear Fourier and wavelet-like transforms*
12:10-12:30	**Lunch break**
12:00-12:30	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
12:30	**Academician of RAS, Prof. Gennadiy Krasnikov** **(The Department of Nanotechnologies and Information Technologies of the RAS, Russia)** *The modern state of quantum technology*
13:00-13:10	**Break**

	Oral Sessions		
13:10-14:40	*Section 1 "Computer Optics and Nanophotonics"* Track 2: online Zoom 4	*Section 2 "Information Technologies for Earth Remote Sensing and Image Processing"* Track 3: online Zoom 5	*Section 3 "Artificial Intelligence and Data Science"* Track 1: offline room 212 Track 2: online Zoom 3

14:00-15:30	**Workshop** *(Online)*		
	Elena Limonova **(Federal Research Center Computer Science and Control of the RAS, Russia)** **Anton Trusov** **(Moscow Institute of Physics and Technology, Russia)** *Efficient pattern recognition on domestic VLIW-platforms*		
14:40-14:50	**Break**		
14:50-16:20	**Oral Sessions**		
	Section 1 "Computer Optics and Nanophotonics" Track 2: online Zoom 4		*Section 3 "Artificial Intelligence and Data Science"* Track 1: offline room 212 Track 2: online Zoom 3
16:20-16:30	**Break**		
16:30-18:00	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*		
16:30	**Prof. Jose Massa** **(Instituto de Investigación en Tecnologías Informáticas, Argentina)** *Behavioural pattern discovery*		
17:00	**Prof. Liam O'Faolain** **(Munster Technological University, Ireland)** *Integrated Photonics for Advanced Indirect Spectroscopy*		

Program of the VII International Conference on Information Technology and Nanotechnology (ITNT-2021)

23 September (Thursday)
Time zone: Samara (GMT +4)

09:00-11:00	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
09:00	**Yuriy Yuzifovich** **(Alibaba Cloud, USA)** *Innovation in knowledge-intensive business*
09:30	**Prof. Christian Riess** **(Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)** *Bayesian Tools for Reliable Multimedia Forensics*
10:00	**Prof. Eckart Michaelsen** **(Fraunhofer Institute of Optronics, System Technologies and Image Exploitation, Germany)** *Gestalt algebra in image processing*
10:30	**Valery Cherepennikov** **(Huawei Nizhny Novgorod Research Center, Russia)** *Huawei solutions for Artificial Intelligence*
11:00-11:10	**Break**
11:10-12:40	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
11:10	**Dr. Yann Donon** **(CERN, Switzerland)** *DUNE experiment, data acquisition and quality monitoring*
11:40	**Dr. Yashar Azizian-Kalandaragh** **(Gazi University, Turkey)** *Quantification of the self-healing characteristic of the structured beams*
12:10	**Prof. Alexey Savvateev** **(MIPT, ASU and Central Economics and Mathematics Institute of the RAS, Russia)** *The "n-inspection" problem*
12:40-13:10	**Lunch break**

	Oral Sessions		
13:10-14:40	*Section 1 "Computer Optics and Nanophotonics"* Track 4: online Zoom 4	*Section 2 "Information Technologies for Earth Remote Sensing and Image Processing"* Track 4: online Zoom 5	*Section 3 "Artificial Intelligence and Data Science"* Track 1: online Zoom 2 Track 2: offline room 212
14:40-14:50	**Break**		

	Oral Sessions		
14:50-16:20	*Section 1 "Computer Optics and Nanophotonics"* Track 4: online Zoom 4		*Section 3 "Artificial Intelligence and Data Science"* Track 1: online Zoom 2 Track 2: offline room 212
16:20-16:30	**Break**		
16:30-18:30	**Roundtable Session** *building 1, room 209 (Online translation)*		

Program of the VII International Conference on Information Technology and Nanotechnology (ITNT-2021)

24 September (Friday)
Time zone: Samara (GMT +4)

09:00-11:00	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
09:00	**Dr. Artem Danilov** **(Attocube systems AG / neaSpec team)** *NanoFTIR hyperspectral imaging and pseudoheterodyne s-SNOM imaging for nanoscale optical analysis*
09:30	**Mikhail Vladimirov** **(SberBank, Russia)** *AI in the SberBank Robotics Laboratory*
10:00	**Anton Dzhoraev** **(NVIDIA, Russia)** *NVIDIA for AI and HPC*
10:30	**Prof. Saifollah Rasouli** **(Institute for Advanced Studies in Basic Sciences, Iran)** *Optimized grating-based diffraction methods for the characterization and multiplication of optical vortices and the manipulation of multiple particles*
11:00-11:10	**Break**
11:10-12:40	**Plenary Session** *building 1, room 209 (Online: Zoom 1)*
11:10	**Prof. David Asatryan** **(Russian-Armenian University, Armenia)** *Structural Intellectual Techniques for Texture Image Analysis*
11:40	**Prof. Ivan Laptev** **(National Institute for Research in Digital Science and Technology, France)** *Scaling visual recognition with less supervision*
12:10	**Prof. Emanuele Pelucchi** **(Tyndall National Institute, Ireland)** *Engineering site-controlled QDs for quantum technologies on (111)B GaAs*
12:40-13:10	**Lunch break**

	Oral Sessions		
13:10-14:40	*Section 1 "Computer Optics and Nanophotonics"* Track 3: online Zoom 4		*Section 3 "Artificial Intelligence and Data Science"* Track 1: online Zoom 2 Track 2: online Zoom 3
14:40-14:50	**Break**		
14:50-15:10	**Closing Ceremony** *building 1, room 209 (Online: Zoom 1)*		

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Section 1 - Computer Optics and Nanophotonics

20 September (Monday)
Time zone: Samara (GMT +4)
Track 1: "Optical components"
(offline - building 1, room 209)

Chair: *Prof. Victor Kotlyar*
Section secretary: *Dr. Sergey Stafeev*

13:10	**Elena Kozlova, Sergey Stafeev, Vladimir Podlipnov, Sergey Fomchenkov, Victor Kotlyar** *Theoretical and experimental study of spiral zone plates in aluminum thin film*
13:25	**Dmitry Savelyev** *Diffraction of vortex beams by annular gratings with variable height in the near zone*
13:40	**Irina Prokofieva, Vladimir Podlipnov, Svetlana Khonina** *Optically formed Hermite-Gaussian mode classification via convolutional neural network*
13:55	**Sergey Stafeev, Victor Kotlyar** *Tight focusing of beams with hybrid circular-azimuthal polarization*
14:10	**Denis Yablokov, Vladimir Pavelyev** *Micro-optics elements data representation in GDSII format using multiparadigm design*
14:25	**Victor Kotlyar, Alexey Kovalev** *Propagation-invariant infinite-topological-charge cosine vortex laser beams*
14:40	**Break**
14:50	**Dmitry Nesterenko, Roman Pavelkin, Shinji Hayashi, Victor Soifer** *Estimation of the resonance characteristics of surface plasmon polariton structures for metal layers with different morphologies*
15:05	**Valentin But, Sergey Karpeev** *Development of metamaterial units for piezo and optical structures*
15:20	**Pavel Serafimovich, Alexey Dzyuba, Sergey Popov** *Using pipeline classifier-regressor in the problem of recognizing wavefront aberrations*
15:35	**Artem Kashapov, Leonid Doskolovich, Dmitry Bykov, Evgeni Bezus** *Optical differentiator based on a trilayer metal-dielectric structure*
15:50	**Vladimir Pavelyev, Andrey Agafonov, Anton Reshetnikov, Dmitry Tsypishka, Alexey Shakhmin, Grigory Kropotov** *Fabrication and investigation of THz photonics devices based on metal-dielectric photonic quasicrystals*
16:05	

21 September (Tuesday)
Time zone: Samara (GMT +4)
Track 2: "Optical devices"
(offline – building 1, room 212)

Chair: *Prof. Alexander Volyar*
Section secretary: *Yana Akimova*

13:10	**Elena Kadomina, Evgeni Bezus, Leonid Doskolovich** *Suppression of parasitic scattering of surface plasmon polariton propagating over a rectangular step*
13:25	**Vladimir Pavelyev, Konstantin Tukmakov, Anton Reshetnikov, Vasily Gerasimov, Natalya Osintseva, Boris Knyazev** *Experimental investigation of self-healing of terahertz vortex beams with topological charge l=3,4*
13:40	**Mikhail Bretsko, Yana Akimova, Alexander Volyar, Yuriy Egorov** *Digital method for measuring the amplitudes and phases of Hermite-Gauss beams in the perturbed Laguerre-Gauss beams*
13:55	**Nikita Andriyanov, Aleksandr Shirokanev, Nataly Ilyasova** *Mathematical modeling of laser exposure in the fundus for assessment the laser coagulation safe parameters during the diabetic retinopathy treatment*
14:10	**Roman Sergeev, Michael Osipov** *Reconstruction of double-exposure speckle photography by Young's method using amplitude circular and annular diaphragms*
14:25	**Alexandra Mayorova, Alexander Korobtsov, Svetlana Kotova, Nikolay Losevsky, Sergey Samagin** *Complex optical-convective trap*
14:40	**Break**
14:50	**Andrei Pavelev, Vitalii Semin** *Calculation of the resonance fluorescence power spectrum for three-level system in stochastic Schroedinger equation approach*
15:05	**Yana Akimova, Mikhail Bretsko, Alexander Volyar, Yuriy Egorov** *Reconstruction intensity of structured light beams after random phase distortions*
15:20	**Evgeni Bezus, Dmitry Bykov, Leonid Doskolovich** *Gires-Tournois interferometers for modes of dielectric slab waveguides*
15:35	**Dmitry Bykov, Evgeni Bezus, Leonid Doskolovich** *Bound states in the continuum in a 3-wave Fabry–Pérot interferometer*
15:50	**Vladislav Zaitsev, Sergey Stafeev, Victor Kotlyar** *Focusing of cylindrical vector beams with an order from zero to one and with an order greater than one*
16:05	**Alexandra Savelyeva, Elena Kozlova, Victor Kotlyar** *Comparative modeling of phase spiral and conventional zone plates*

Chair: *Prof. Vladimir Pavelyev*
Section secretary: *Konstantin Tukmakov*

13:10	**Elena Kozlova, Victor Kotlyar** *Modeling of a plasmonic lens in thin gold and silver films*
13:25	**Diomid Bakurov, Oleg Ivanov, Maksim Abelmas, Laysan Gafurova** *Calculation of transmission of a structure based on a taped insertion of a coreless optical fiber*
13:40	**Maksim Abelmas, Laysan Gafurova, Diomid Bakurov, Oleg Ivanov** *Calculation of longitudinal evanescent field of cladding modes of an optical fiber*
13:55	**Rinat Seidgazov, Fikret Mirzade** *Electrocapillary melt acceleration during laser melting of metals in the presence of an electric field*
14:10	**Polina Zimnyakova, Andrey Voronov, Daria Ignatyeva, Alexander Shaposhnikov, Vladimir Berzhansky, Dolendra Karki, Miguel Levy, Vladimir Belotelov** *Enhancement of the Faraday effect due to excitation of modes in nanocylinders of bismuth-substituted iron-garnet*
14:25	**Anatoly Neshcheret, Vladimir Abramov, Dmitriy Klyuev, Oleg Osipov** *Characteristics of a circular optical waveguide made of chiral metamaterial*
14:40	**Break**
14:50	**Elena Barshak, Constantine Alexeyev, Dmitriy Vikulin, Boris Lapin, Maxim Yavorsky** *Propagation of optical vortices in the system of twisted anisotropic and multihelical optical fibers*
15:05	**Zoya Fomkina, Natalya Kononova, Yuri Zakharenko** *Transfer of the unit of length to modern lasers and laser measuring systems*
15:20	**Daria Lizunkova, Ivan Shishkin, Natalya Latukhina** *Multilayer structures with the rare earth metal fluoride films based on porous silicon*
15:35	**Dmitriy Vikulin, Elena Barshak, Boris Lapin, Constantine Alexeyev, Maxim Yavorsky** *Acoustically controlled universal fiber gates for optical vortices*
15:50	**Anton Nalimov, Victor Kotlyar, Alexey Kovalev** *Propagation of Gaussian beam with a set of zero intensities*
16:05	**Daria Lizunkova, Dmitry Bezmelnitsin, Peter Pronin** *The main parameters of the formation of whisker nanocrystals*

22 September (Wednesday)
Time zone: Samara (GMT +4)
Track 2: "Optical devices"
(online – Zoom 4)

Chair: *Prof. Svetlana Khonina*
Section secretary: *Dr. Alexey Porfirev*

13:10	**Roman Khabibullin, Olga Starinova** *Mathematical model of photon pressure on a non-perfectly reflecting solar sail with thin-film reflectivity control devices*
13:25	**Artem Turov, Maksim Kulya, Andrei Gorodetsky, Nikolay Petrov** *Fundamental specifications of reconstruction in terahertz pulsed time-domain holography*
13:40	**Boris Lapin, Constantine Alexeyev, Elena Barshak, Dmitriy Vikulin, Maxim Yavorsky** *Propagation of optical vortices in fiber ring resonators*
13:55	**Valeriia Pilipova, Vadim Davydov, Vasiliy Rud** *Fiber-optic emergency simulator for checking the operation of control systems of shipboard nuclear power plants*
14:10	**Elena Zelenina, Vadim Bakhmetyev** *Improving the performances of ZnS phosphors for creating the solid-state radioluminescent light sources (SRLS)*
14:25	**Sergei Vasin, Azat Nizametdinov, Vyacheslav Sergeev** *Installation and modes of production of polymer fibers with carbon nanotubes by electrospinning*
14:40	**Break**
14:50	**Tatiana Yakovleva** *A New Approach to Solving the Tasks of Optical Metrology based upon the Statistical Analysis of Rician Signals*
15:05	**Ivan Shishkin, Daria Lizunkova** *Simulation of light transit through silicon nanowires structure*
15:20	**Evgeniy Goncharov, Alexandr Sayenko, Sergey Malyukov, Alexandr Palii** *Formation of ITO Thin Films by Magnetron Sputtering for Application in Solar Cells*
15:35	**Alexander Lenshin, Yaroslav Peshkov, Sergey Kannykin, Yury Yurakov** *Peculiarities of X-ray reflectivity application to determine the porosity of porous silicon structures*
15:50	**Diana Dmitrieva, Vadim Davydov, Vasiliy Rud** *Remote fiber-optic sensor for controlling γ-radiation of various power*
16:05	

23 September (Thursday)
Time zone: Samara (GMT +4)
Track 4: "Modeling in Optics"
(online – Zoom 4)

Chair: *Prof. Dmitry Bykov*
Section secretary: *Dr. Nikita Golovastikov*

13:10	**Anatolii Briushinin, Vadim Davydov, Vasily Rud** *The intelligent lighting control system using a wireless Wi-Fi communication channel*
13:25	**Danila Savin, Vadim Davydov, Vasily Rud** *Development of a light control system with an optical air transmission system*
13:40	**Marina Kolebanova** *Modeling the propagation of elliptic Laguerre-Gaussian beams*
13:55	**Sergey Miheev, Alexander Sotsky, Maxim Nazarov** *Model of a waveguide probe for terahertz skin spectroscopy*
14:10	**Vladimir Toporovsky, Alexis Kudryashov, Vadim Samarkin, Alexander Panich, Alexander Sokallo, Analoliy Malykhin** *Stacked-actuator deformable mirror with rigid design made of multilayer piezoceramic combs*
14:25	**Artyom Egorenkov, Vasiliy Zubkov, Andrey Pashuk** *Hybrid device with electron sensitive CCD for near IR spectral range*
14:40	**Break**
14:50	**Marina Bastrakova** *Entanglement control of two coupled qubits by a non-resonant driving field*
15:05	**Albina Blashbanova** *Modeling the influence of aberrations on the formation of vortex beams using a spiral phase plate*
15:20	**Vladislav Batshev, Alexander Machikhin, Sergey Boritko, Grigoriy Martynov, Alexey Gorevoy, Natalia Moiseeva** *Double-pass acoustooptic filtration for spectral imaging applications*
15:35	**Irena Gureeva, Vadim Davydov, Vasily Rud** *Development of an optical system for additional lighting of premises with sunlight*
15:50	
16:05	

Chair: *Dr. Alexey Kovalev*
Section secretary: *Dr. Anton Nalimov*

13:10	**Pavel Golovinski, Eldar Enikeev** *Scattering of an optical pulse by dimers of spherical gold nanoparticles*
13:25	**Oleh Yermakov, Andrey Bogdanov** *Canalization, routing and polarization peculiarities of hyperbolic plasmon-polaritons on resonant metasurfaces*
13:40	**Vladimir Afanasyev, Aleksey Vdovin** *The solution to the problems of digital filtering in automated systems based on light screens*
13:55	**Laysan Gafurova, Oleg Ivanov, Diomid Bakurov, Maxim Abelmas** *Creation of fiber-optic structures with chitosan coatings for pH sensing*
14:10	**Ruslan Shimansky, Victor Korolkov, Dima Belousov, Vladimir Homutov, Vladimir Shimansky** *The system for writing and control the micro-relief of low-frequency multi-level relief-phase elements*
14:25	**Peter Zavyalov, Vitaly Urzhumov, Maxim Kravchenko** *Investigation of the diffractive optical elements characteristics for the appearance of fuel elements inspection systems*

Section 2 - Information Technologies for Earth Remote Sensing and Image Processing

20 September (Monday)
Time zone: Samara (GMT +4)
Track 1: "Image Processing and Computer Vision"
(offline – building 1, room 212)

Chair: *Prof. Vladislav Myasnikov*
Section secretary: *Yuliya Vybornova*

13:10	**Pavel Chochia** *An approach to image smoothing in the frame of signal model*
13:25	**Alexey Chulichkov, Stanislav Nikitin, Alexander Borovski, Oleg Postylyakov** *Computer-aided measuring system based on an artificial neural network for estimating atmospheric parameters*
13:40	**Dmitry Murashov, Yury Obukhov, Ivan Kershner, Mikhail Sinkin** *Application of Frequency Features of Optical Flow for Event Detection in Video-EEG Monitoring Data*
13:55	**Konstantin Kiy, Dmitriy Anokhin, Roman Dosaev** *Geometrized histograms method: integrated analysis of road scenes*
14:10	**Radik Magdeev, Vitaliy Dementiev, Aleksander Tashlinsky** *Detecting anomalies in temporal image sequences based on object identification by the stochastic gradient adaptation*
14:25	**Vitaliy Dementev, Marat Suetin, Maria Gaponova** *Improving the quality of defect detection in steel structure images*
14:40	**Break**
14:50	**Vladimir Fursov** *Defocus correction with IIR filter model identification in relation to a non-uniform grid*
15:05	**Evgeny Myasnikov** *Selection of vantage points in vp-tree construction for duplicates finding in digital images*
15:20	**Anna Denisova, Andrey Chernov** *Abandoned field determination using MODIS data*
15:35	**Anna Denisova, Yulia Mescherskaya, Victor Fedoseev** *Anti-spoofing methods for facial authentication*
15:50	**Vitaliy Dementev, Alexander Tashlinsky** *Using deep Gaussian models when combining images*
16:05	**Nikita Demin, Natalya Ilyasova, Andrey Gaidel** *Information technology for estimation accuracy of selection macular edema region in fundus images using OCT data*

21 September (Tuesday)
Time zone: Samara (GMT +4)
Track 2: " Image Processing "
(online – Zoom 5)

Chair: *Prof. Vladislav Sergeev*
Section secretary: Anton Agafonov

13:10	**Viacheslav Antsiperov** *Statistical representation of images using fixed size count samples*
13:25	**Mikhail Gashnikov** *Compressing images using contextual interpolator parameterization*
13:40	**Andrey Sosnovsky** *A method for increasing of the phase unwrapping efficiency by filtering the residual phase image*
13:55	**Valeriy Kosykh, Gennadiy Gromilin** *Correction of non-uniform sensitivity of the scanning PDD during interframe processing of an image Sequence*
14:10	**Alexander Minkin** *The use of autoencoders for compression of hyperspectral data*
14:25	**Alexander Tashlinskii, Galina Safina, Roman Kovalenko, Radik Ibragimov** *Usage of mutual information as similarity measures for stochastic binding images*
14:40	**Aleksei Golovin, Natalya Ilyasova, Nikita Demin** *Retinal layers segmentation technology for optical coherence tomography images*

Chair: *Viktor Fedoseev*
Section secretary: *Anna Egorova*

13:10	**Mikhail Lange, Semion Paramonov** *On a lower bound to classification error probability in an ensemble of data sources*
13:25	**Artyom Makovetskii, Sergei Voronin, Vitaly Kober, Alexei Voronin** *Regularized point-to-point and point-to-plane functionals in the point clouds registration problem*
13:40	**Kharlampiy Tiras, Leonid Mestetsky, Svetlana Nefedova, Nikita Lomov** *Registration of regeneration of planaria from photographic images*
13:55	**Alexey Ruchay, Konstantin Dorofeev, Vsevolod Kalschikov, Vladimir Kolpakov, Kinispai Dzhulamanov** *A technology of contactless three-dimensional reconstruction of animal models using depth cameras*
14:10	**Alexander Kugaevskikh** *Receptive fields of neurons in a bio-inspired neural network of image segmentation*
14:25	**Anton Skalkin, Yulia Stroeva** *Development of a software system for event detection in real-time image analysis*
14:40	**Daniil Kozlov, Vladislav Myasnikov** *Development of an autonomous robotic system using the graph-based SPLAM algorithm*
14:55	**Pavel Dikanev, Yuliya Vybornova** *Method for PDF document authentication and localization of tampered regions*
15:10	**Rinat Diyazitdinov** *Iterative algorithm of space-time processing for accuracy contour superposition*

23 September (Thursday)
Time zone: Samara (GMT +4)
Track 4: "Geoinformatics and Earth Remote Sensing"
(online – Zoom 5)

Chair: *Vasiliy Kopenkov*
Section secretary: *Daniil Kozlov*

13:10	**Alexey Andreev, Yury Nefedyev, Regina Mubarakshina, Zoya Andreeva, Viktor Borovskih, Natalya Demina** *The Study of the Digital Model of the Earth Built on Remote Sensing Data by ASTER System*
13:25	**Yury Nefedyev, Alexey Andreev, Regina Mubarakshina, Zoya Andreeva, Natalya Demina, Viktor Borovskih** *The Earth Remote Sensing Method via Quantum and Optical Systems*
13:40	**Alexander Raikov, Viktor Medennikov** *Integration of Earth Remote Sensing Data on the Digital Platform of Russian Agriculture*
13:55	**Vladimir Galuzin, Petr Skobelev, Elena Simonova, Anastasiya Galitskaya, Vitaly Travin** *Intelligent System for Adaptive Planning of Targeted Application of Advanced Space Systems for Earth Remote Sensing*
14:10	**Oleg Goriachkin, Aleksey Borisenkov, Nikolay Gusev** *Error in determining the velocity vector from SAR images of the target by along-track interferometry*
14:25	**Ivan Maslov, Oleg Goryachkin** *Estimation of the error in determining the height of the radar interferometer, taking into account the influence of destabilizing factors*
14:50	**Ramil Shaimukhametov** *Analysis of algorithms for implementing Delaunay triangulation*

Section 3 - Artificial Intelligence and Data Science

20 September (Monday)
Time zone: Samara (GMT +4)
Track 1: "Software"
(online – Zoom 2)

Chair: *Prof. Sergey Vostokin*
Section secretary: *Denis Zherdev*

13:10	**Alexey Postolny, Ekaterina Saveleva, Sergey Jatsun, Andrey Yatsun, Oksana Loktionova** *Models and algorithms for controlling the movement of an exoskeleton for human rehabilitation*
13:25	**Nina A. Filimonova, A. G. Kolpakov** *Experimental Study of Data Streams Initiated by Internet Services in the Local Networks*
13:40	**Marina Nikitina** *Knowledge-oriented system of dietotherapy*
13:55	**Tatiana Mikhailova, Svetlana Mustafina, Eldar Miftakhov, Vladimir Mikhailov** *Designing a database for storing the results of experiments on conducting a batch process of isoprene polymerization*
14:10	**Philip Moskalenko, Valeria Gribova, Vadim Timchenko, Elena Shalfeeva** *Control graph based solver development for knowledge based systems*
14:25	**Alexander Zhavoronkov, Konstantin Aksyonov** *Architecture of a distributed multi-agent control system for an active energy complex*
14:40	Break
14:50	**Anna Gnutova, Alexander Nechitaylo, Olga Vasilchuk, Yana Mitrofanova, Andrey Vasilchuk** *Data Driven University Digital Transformation Management*
15:05	**Erchimen Gavriliev, Tatiana Avdeenko** *Assessing qualification of software developers*
15:20	**Karen Grigorian, Max Fisher, Alina Mangusheva** *Justification of the process of development and deployment of projects in the field of data analysis*
15:35	**Denis Parfenov, Irina Bolodurina, Lubov Zabrodina, Larisa Kuznezova, Natalia Yanishevskaya** *Resource Scheduling Techniques for Big Data Processing*
15:50	**Oleg Pavlov** *Dynamic incentive problem of performer with discrete time at industrial enterprise*
16:05	**Yaroslav Metelkin, Katerina Makoviy, Yuliya Khitskova** *Predicting Load in Datacenters Using NARX Model*

20 September (Monday)
Time zone: Samara (GMT +4)
Track 2: "Medical Applications"
(online – Zoom 3)

Chair: *Andrey Gaidel*
Section secretary: *Nikita Davydov*

13:10	**Alexey Menlitdinov, Alexander Korobeynikov, Vladimir Stepanov, Yuri Kuzelin** *Cardiac Arrhythmias Detection Based On Sequential And Linguistic Analysis*
13:25	**Nikita Andriyanov** *Analysis of the restrictive measures on the spread of SARS-CoV-2 impact*
13:40	**Aleksandr Efitorov, Olga Sarmanova, Kirill Laptinskiy, Sergey Burikov, Tatiana Dolenko, Sergey Dolenko** *General and ensemble machine learning models applied to inverse spectroscopy problems*
13:55	**Victoriya Yaikova, Gerasimov Oleg, Nikita Kharin, Tatyana Baltina, Oskar Sachenkov** *Automatic determination of the mechanical properties of bone tissue according to experimental data*
14:10	**Elena Semenova, Oskar Sachenkov** *Automation of processing and analysis of stimulation electromyography data*
14:25	**Alexei Morozov, Olga Sushkova** *Development of terahertz video surveillance methods*
14:40	**Break**
14:50	**Olga Sushkova, Alexei Morozov, Alexandra Gabova, Ivan Kershner, Larisa Chigaleychik, Alexei Karabanov** *Phase analysis of the envelopes of electromyograms of antagonist muscles in patients with neurodegenerative diseases*
15:05	**Maria Shustova, Mikhail Khachumov, Vyacheslav Khachumov** *Impact research of stem cells on areas of ischemic brain lesion using digital processing and cognitive visualization on MRI data*
15:20	**Renata Tolmacheva, Yury Obukhov, Ludmila Zhavoronkova** *Comparison of the calculation of the inter-channel EEG synchronization using the ridges of the wavelet transform and using the Hilbert transform*
15:35	**Ivan Kershner, Yuri Obukhov, Mikhail Sinkin, Dmitry Murashov** *Method of segmentation long-term EEG*
15:50	
16:05	**Basim Salem, Vladimir Solodovnikov, Vladimir Gridin** *Predictive data analysis subsystem for patients with subjective and mild cognitive impairment*

21 September (Tuesday)
Time zone: Samara (GMT +4)
Track 1: "Applied Modelling"
(online – Zoom 2)

Chair: *Prof. Dimitry Golovashkin*
Section secretary: *Anton Kotov*

13:10	**Leonid Litinskii, Boris Kryzhanovsky, Vladislav Egorov, Olga Maximov** *Studies of 3d-ising model with long-range interaction*
13:25	**Alsu Davletgareeva, Gulshat Galimova, Arina Borisova** *Econometric and neural network models in the problem of retail trade turnover analysis*
13:40	**Mikhail Smolkov, Ekaterina Barabanova** *Predicting oxidation state of metal atoms*
13:55	**Olga Kiryanova, Ilya Kiryanov, Ravil Garafutdinov, Alexey Chemeris, Irek Gubaydullin** *Generator of nucleotide sequences for storage and transmission of non-biological information in DNA molecules*
14:10	**Oksana Mandrikova, Anastasia Rodomanskay** *Wavelet model of geomagnetic field variations and its application in the problem of detecting geomagnetic disturbances*
14:25	**Maxim Polyakov** *Cluster Analysis for Numerical Simulation of Thermometric Data*
14:40	**Break**
14:50	**Mikhail Stepanov, Andrey Stepanov, Olga Stepanova** *Neuro-fuzzy control system of a mobile plant using the brain computer interface*
15:05	**Mikhail Stepanov, Andrey Stepanov, Olga Stepanova** *Hybrid control system of educational robotic complex with the analysis of a psycho-emotional status of the trainee*
15:20	
15:35	**Elisei Rykov, Olga Nevzorova** *Analysis of official documents to assess the quality of staff work*
15:50	**Azat Daminov, Eldar Miftakhov, Svetlana Mustafina** *SaaS is a service for solving problems of chemical kinetics*
16:05	**Sergey Grachev, Dmitriy Novichkov, Ekaterina Panteley, Oleg Maleev, Dmitriy Spirin** *Synthesis of engineering systems based on the requirements*

21 September (Tuesday)
Time zone: Samara (GMT +4)
Track 3: "Neural networks applications"
(online – Zoom 3)

Chair: *Prof. Artem Nikonorov*
Section secretary: *Roman Khabibullin*

13:10	**Dmitrii Polupanov, Svetlana Abdiusheva, Vsevolod Gallyamov** *Improving the neural network mathematical model of corporate bankruptcy*
13:25	**Gennady Algashev** *Solving a regression problem using a convolutional neural network*
13:40	**Nikita Popovskiy, Vadim Davydov, Vasiliy Rud** *Investigation of the operation of a receiver with nonlinear frequency multiplexing based on neural networks*
13:55	**Tatiana Makarovskikh, Mostafa Abotaleb** *Analysis of Neural Network and Statistical Models Used for Forecasting of Covid-19 Cases*
14:10	**Ivan Baranov** *Using CNN to train RL agents in a discrete environment with color and black-and-white images*
14:25	**Polina Demochkina, Andrey V. Savchenko** *Neural network model for video-based emotion classification on mobile devices*
14:40	**Break**
14:50	**Anna Chernomyrdina** *Investigating Video Facials Using Deep Learning*
15:05	**Grigory Voronkov, Ekaterina Lopukhova, Igor Kuznetsov** *Low-rate speech coding using radial neural networks*
15:20	**Denis Parfenov, Irina Bolodurina, Lubov Zabrodina, Arthur Zhigalov** *The neural fuzzy classification system for cybersecurity incidents under conditions of uncertainty*
15:35	**Yaroslav Saprykin, Victor Ryazantsev, Alexandr Smirnov** *Application of neural networks to the analysis of time series data in the recognition of driver fatigue*
15:50	
16:05	

22 September (Wednesday)
Time zone: Samara (GMT +4)
Track 1: "Applied Modelling / Software / Natural Language Processing"
(offline – building 1, room 212)

Chair: *Prof. Alexander Kupriyanov*
Section secretary: *Natalia Kravtsova*

13:10	**Olga Sarmanova, Kirill Laptinskiy, Maria Khmeleva, Sergey Burikov, Sergey Dolenko, Tatiana Dolenko** *Carbon nanosensors and machine learning algorithms for simultaneous measurement of pH and temperature of aqueous media*
13:25	**Aleksey Tabachinskiy, Petr Skobelev, Aleksei Zhilyaev, Vladimir Laryukhin, Elena Simonova, Tzong-Ru Lee** *Digital twin of rice as a decision-making service for precise farming, based on environmental datasets from the fields*
13:40	**Vadim Moshkin, Andrew Konstantinov, Nadezhda Yarushkina** *Comparison of different neural networks in sentiment analysis of social media data*
13:55	**Vadim Moshkin, Dmitry Fadeev, Ilya Andreev** *An intelligent search algorithm for extremist texts*
14:10	**Nikolay Krivosheev, Ksenia Vik, Vladimir Spitsyn** *Generating text based on LSTM neural network*
14:25	**Andrey Nikonov, Alexey Vulfin, Vladimir Vasilyev, Anastasia Kirillova, Vladimir Mikhailov** *System for Estimation CVSS Severity Metrics of Vulnerability Based on Text Mining Technology*
14:40	**Break**
14:50	**Alexey Mayorov, Pavel Yakimov** *Development of a service for automated logging of cycling competitions*
15:05	**Boris Likhttsinder, Alexander Privalov** *Traffic Buffering in Multichannel Switches of Access Networks*
15:20	
15:35	
15:50	
16:05	

22 September (Wednesday)
Time zone: Samara (GMT +4)
Track 2: "Data Science Methods"
(online – Zoom 3)

Chair: *Prof. Vladimir Fursov*
Section secretary: *Daria Arkhipova*

13:10	**Andrey Bochkarev** *Deconvolution of signals of analytical devices in the basis of Chebyshev-Hermite functions*
13:25	**Valentina Sulimova, Alexandra Makarova, Andrey Kopylov, Sergey Dvoenko** *Fast Decision of Big SVM-regression Problems*
13:40	**Alsu Nurutdinova, Sergei Shalagin** *Application of a modified "forward-backward" algorithm for identification of Markov chains*
13:55	**Bogdana Mandrikova, Vladimir Geppener** *Application of wavelet transform and Autoencoder neural network to analyze complex data*
14:10	**Alexander Demidovskij** *Neural Linguistic Decision-Making Operator based on Neural Turing Machine*
14:25	**Ismail Gadzhiev, Sergey Dolenko** *Research and application of the convolutional hierarchical neural network classifier*
14:40	**Break**
14:50	**Rashit Nasyrov** *Data analysis based on a recursive approach*
15:05	**Ekaterina Zguralskaya** *Using nonlinear feature transformations to find hidden patterns in data*
15:20	**Igor Genrikhov, Elena Djukova** *Finding irredundant association rules in partially orders data*
15:35	**Serdyukov Konstantin, Avdeenko Tatyana** *Development and research of the test data generation approach modifications*
15:50	**Igor Mishin, Olga Saltykova** *Methods for improving fuzzing-testing using machine learning*
16:05	**Tatiana Kuznetsova, Polina Repp** *Hybrid neural network model of harmful emissions of industrial gas-turbine unit*

23 September (Thursday)
Time zone: Samara (GMT +4)
Track 1: "Applied Modelling"
(online – Zoom 2)

Chair: *Prof. Pavel Serafimovich*
Section secretary: *Denis Zherdev*

13:10	**Anna Shafeeva, Nikolay Chernov, Alexandr Palii, Alexandr Sayenko** *Application of neural network technologies to minimize the aerodynamic drag of an axisymmetric airfoil*
13:25	**Anna Shershakova** *Using the data mining techniques for implementation of schemes nowcasting*
13:40	**Ekaterina Panteley, Dmitry Novichkov, Vyacheslav Abrosimov, Alexander Mochalkin, Vladimir Trusilov** *Hydroacoustic robotic study of the underwater part of engineering structure*
13:55	**Alina Mangusheva, Alexander Kvaratskhelia, Damir Rakhimov, Karen Grigorian** *Automatic classification of citizens' applications*
14:10	**Anastasia Ivanova, Nikita Kharin, Ekaterina Tufanova** *Application of neural networks for problems of stabilization of dynamic systems*
14:25	**Elena Rostova, Mikhail Geraskin** *Optimization of Costs for Prevention of Industrial Accidents Risks in Economic Sectors*
14:40	**Break**
14:50	**Mikhail Geraskin** *Choice of optimal incentive system for large social groups of volunteers*
15:05	**Innokentiy Semushin** *Instrument-criterion-based (active) methods of adaptation and contingency screening for data processing systems* _A
15:20	**Igor Bychkov, Alexander Feoktistov, Sergey Gorsky, Roman Kostromin** *Intellectualization of developing distributed applied software packages based on continuous integration of software and resource configuring*
15:35	**Andrey Ivkin, Michael Burlakov** *Prototype of expert intrusion detection system based on comparative analysis of adaptive models*
15:50	**Anastasiya Aleksandrova, Kamila Koledina, Sergey Koledin** *Multi-criteria optimization of chemical production in the RStudio environment*
16:05	**Anastasia Kirillova, Vladimir Vasilyev, Alexey Vulfin and Andrey Nikonov** *Modeling the cyber attacks vector based on fuzzy cognitive maps*

23 September (Thursday)
Time zone: Samara (GMT +4)
Track 2: "Medical Applications / Data Science Methods "
(offline – building 1, room 212)

Chair: *Prof. Alexander Kupriyanov*
Section secretary: *Natalia Kravtsova*

13:10	**Nikita Dragunov, Elena Djukova** *Finding frequent and infrequent elements of partial orders product and the problem of monotone boolean-valued function decoding*
13:25	**Elena Djukova, Gleb Masliakov** *Correct classification over product of partial orders*
13:40	**Valery Zasov, Maksim Romkin** *Adaptive interference suppression in intermittent and pulsed signals*
13:55	**Nikita Firsov, Artyom Nikonorov, Viktoria Evdokimova** *Development and research of image reconstruction algorithms with GAN*
14:10	**Alan Jalad, Natalya Ilyasova, Nikita Demin** *Semantic segmentation technology for lung radiographs using convolutional neural network*
14:25	**Rustam Badrutdinov, Aleksandr Kupriyanov, Rustam Paringer** *Reducing the U-Net number of parameters using the differentiable architecture search*
14:40	**Break**
14:50	**Anton Ivaschenko, Anastasia Stolbova, Pavel Sitnikov, Oleg Surnin, Nataly Ilyasova** *Digital transformation of public services based on a content management system*
15:05	**Alexandr Samoilov, Sergey Smirnov** *Universal method of accounting the properties existence constraints in problems of deriving formal concepts from fuzzy object-attributive data*
15:20	**Tatiana Zdornova** *Development of methods for detecting pathologies on mammograms*
15:35	
15:50	
16:05	

24 September (Friday)
Time zone: Samara (GMT +4)
Track 1: " Natural Language Processing "
(online – Zoom 2)

Chair: *Dmitry Kirsh*
Section secretary: *Yegor Goshin*

13:10	**Nikita Chikunov, Elena Pavlicheva** *Development of a model of an automated data markup system for detecting destructive topics in Internet-discussions*
13:25	**Valery Solovyev, Svetlana Akhtiamova** *Top-level synsets in the RuWordNet thesaurus*
13:40	**Taisiya Kutsaeva** *Solving the problem of determining the sentiment of text with neural networks*
13:55	**Eduard Zubchuk, Dmitry Menshikov, Nikolay Mikhaylovskiy** *Efficiency of short text classifiers for payment classification*
14:10	**Alexey Kolosov, Archil Maysuradze** *Correction of vector representations of words to improve the semantic similarity*
14:25	**Andrei Pavelev, Mikhail Burlakov** *Dimension reduction for the text classification: the time of learning and quality tradeoff in machine learning*

24 September (Friday)
Time zone: Samara (GMT +4)
Track 2: "Data Science Methods"
(online – Zoom 3)

Chair: *Rustam Paringer*
Section secretary: *Anton Kotov*

13:10	**Anton Romanov, Aleksey Filippov** *Context modeling in predictive analytics*
13:25	**Sergei Shalagin, Vjacheslav Zakharov** *Implementation of given stochastic function based on polynomials over a Galois field*
13:40	**Svetlana Korabelshchikova** *Algorithms for solving problems of information theory, leading to the problem of the backpack*
13:55	**Aleksey Guryanov** *Efficient computation of SHAP values for piecewise-linear decision trees*
14:10	**Oleg Panischev, Sergey Demin, Svetlana Panischeva, Ruslan Latypov** *Local properties in collective dynamics of the human cerebral cortex neuromagnetic signals*
14:25	**Alexander Proskuryakov, Saygid Uvaisov, Dmitry Beylekchi** *Predictive and non-predictive methods of digital financial asset management*

Poster Session 1 - <u>Computer Optics and Nanophotonics</u>

20 – 24 September (Online – Miro platform)

ID 8:   Muhammad Ali Butt, Dmitry Savelyev
Axicon versus spatial light modulator: A brief analysis

ID 13:   Kseniya Gennadievna Arinushkina, Anton Petrovich Valov, Vadim Vladimirovich Davydov
Digital processing of optical signals in the frequency standard based on rubidium atoms - 87

ID 19:   Eugene Bashkirov
Entanglement of two dipole-coupled qubits induced by the quantum field of cavity with a Kerr medium

ID 24:   Olga Dyukareva
Simulation of propagation of polynomial circular laser beams

ID 29:   Yuriy Egorov, Mihail Bretsko, Yana Akimova, Alexander Volyar
OAM instability of higher-order optical vortices

ID 33:   Angelina Moroz, Vadim Davydov, Vasiliy Rud'
Development of a technique and a fiber-optic system for checking in the anechoic chamber the radiation pattern of an active phased array antenna in the far-field

ID 44:   Pavel Khorin
Iterative wavefront correction algorithm based on optical expansion in the Zernike basis

ID 53:   Andrey Ustinov, Svetlana Khonina
Degree of cyclicity: another characteristic of the phase distribution

ID 64:   Nadya Grebenikova, Vadim Davydov
Features of the design of the optical part of the refractometer for monitoring the state of the flowing liquid medium

ID 65:   Semen Logunov, Vadim Davydov, Vasiliy Rud'
Three-component quantum variometer for autonomous space devices

ID 77:   Anna Skidanova
Modeling the formation of spiral light distributions using diffraction optical elements

ID 83:   Stanislav Sergunin
Focusing of pulsed laser linearly polarized Gaussian beams using a refractive microaxicon

ID 104:   Sofya Abdurakhmanova, Vadim Davydov, Georgiy Bukharov, Zoya Geisser
Development of a technique for ensuring the stability of the parameters of pulsed and continuous radiation in laser systems with semiconductor pumping

ID 111:   Andrey Krupnikov, Mikhail Kirilenko
Propagation of beams matched with spheroidal functions through the Fresnel transform

ID 113:   Arina Starikova, Mikhail Kirilenko
Decomposition of the formed Airy beam in Gauss-Hermite modes

ID 114:   Alexey Raku, Alexander Shirokanev, Alexander Degtyarev, Nataly Ilyasova
Numerical modeling of the heat conduction equation in a layered region and experimental study of its methodological error

ID 115:   Alisa Belonenko, Yulia Dvuzhilova, Ilya Dvuzhilov
Propagation of an extremely short optical pulse in a nonideal photonic crystal

ID 116:   Maria Shevchenko, Elena Andreeva
Features of the fiber-optic transmission system using optical soliton pulses

ID 117:   Maria Shevchenko, Elena Andreeva
Effect of the Raman scattering on the soliton data transmission system characteristics

ID 147:   Dmitry Shurupov, Vadim Davydov, Vasiliy Rud
Particularity of using of hybrid photodetectors near infrared

ID 152:   Pavel Serafimovich, Alexey Dzyuba, Sergey Popov
Increasing depth of field of tilted diffractive optical element with depth map calculation in the end-to-end imaging system

ID 154:   Sergey Fomchenkov
Development of a high-quality diffraction optical slit manufacturing method for hyperspectral equipment

ID 155:   Natalya Moiseeva
Reflection and transmission matrices for plane anisotropic gradient structures with torsion

ID 170:   Yaroslav Skidanov
Research of the optical transformation based on a generalized spiral phase plate

ID 180:   Ekaterina Muratova, Igor Vrublevsky, Katerina Chernyakova, Nikita Lushpa, Svetlana Nalimova, Vyacheslav Moshnikov
Study of structural parameters of porous anodic oxide depending on electrolyte temperature

ID 181: Egor Byzov, Sergey Kravchenko, Leonid Doskolovich
Formation of specified two-dimensional intensity distributions by refractive optical elements

ID 215: Nadezhda Alekseeva, Sergey Rodin, Bogdan Reznikov, Vadim Davydov, Vasiliy Rud
Features of using a shutter-type modulator in fiber-optic systems

ID 220: Anton Frolov
Changing the trajectory of Airy beams by using a spatial carrier frequency

ID 223: Sergey Kravchenko, Egor Byzov, Leonid Doskolovich
Design method for two free-form refracting surfaces for extended light sources

ID 234: Sergey Poletayev, Aleksandr Lyubimov
Influence of the substrate dimensions on the matching of the lower electrode with the RF displacement generator during reactive-ion etching

ID 242: Anna Grevtseva, Vadim Davydov, Vasiliy Rud
Modernization of the optical part of the quantum frequency standard on rubidium-87 atoms to improve metrological characteristics

ID 258: Nataliya Erkhova, Evgenii Sechak, Vladimir Shmagin
Optical scheme of FCU for WSO-UV project

ID 266: Stanislav Abulkhanov, Dmitriy Goryainov, Yury Strelkov
Assessment of the quality of the end surfaces of optical fiber light guides

ID 269: Stanislav Abulkhanov
Evaluation of the quality of the surface microrelief of a metal optics element using continued fractions

ID 280: Serguei Murzin, Alexey A. Melnickov, Maksim Blokhin
Application of diffractive optics for structures formation of dual phase steel with reduced microhardness

ID 285: Serguei Murzin, Nikolay L. Kazanskiy, Christian Stiglbrunner
Development of technologies of laser material processing with use of diffractive optics

ID 289: Serguei Murzin, Maksim Blokhin, Alexey A. Melnickov
Synthesis of metal-semiconductor nanocomposite based on zinc oxide by laser irradiation

ID 291: Anastasiya Shatskaya, Konstantin Cherepanov, Dmitry Artemyev
Long-pass edge interference filters designing in NIR spectral range for Raman spectroscopy

ID 292: Alexander Gorokhov

Quantum theory of multilevel atoms interaction with structured electromagnetic fields

ID 321: Victor Dolgirev, Sergei Sharangovich

Holographic formation of multilayer inhomogeneous PPM-LC diffraction structures under conditions of photoinduced change in absorption

ID 324: Anton Krents, Nonna Molevich, Elizaveta Yarunova

Excitation of optical rogue waves in a laser model with optoelectronic feedback

ID 330: Ilya Galaktionov, Alexander Nikitin, Julia Sheldakova, Alexis Kudryashov

Spatial light modulator control algorithm to focus moderately scattered laser beam

ID 335: Evgeny Monin, Sventlana Khonina

Modeling the propagation of autofocusing beams in linear and nonlinear optical media

ID 336: Alexandra Savelyeva, Elena Kozlova

Numerical modeling of light focusing by dielectric microcylinders with several layers

ID 339: Yulia Khristoforova, Ivan Bratchenko, Lyudmila Bratchenko, Ekaterina Borisova, Alexander Moryatov, Sergey Kozlov, Valery Zakharov

Optical biopsy of skin cancer using Raman spectroscopy and autofluorescence incorporating with demographics

ID 342: Anna Astrakhantseva, Vladimir Kukushkin

Nanoperiodic optical sensors with a giant enhancement of Raman scattering by IR excitation

ID 350: Sunil Kumar, Nishant Tripathi, Prachi Sharma, Prabhash Mishra, Vladimir Pavelyev

Development of transition metal dichalcogenides for modern photodetector devices

ID 361: Ilia Komarov, Evgeni Bezus, Leonid Doskolovich

Simulation of spectral diffractive lenses taking into account the effects of the rigorous electromagnetic diffraction theory

ID 362: Marina Yazykova, Nishant Tripathi, Anastasiia Rymzhina, Victoria Valgaeva, Vladimir Podlipnov

Synthesis of CNTs for biomedical and photonic applications using rutin as a catalyst

ID 379: Elizaveta Yarunova, Anton Krents, Nonna Molevich

Study of the influence of the alpha factor on the stabilization of radiation of semiconductor lasers using optical injection

ID 384: Elena Zavyalova, Dmitry Gribanyov, Gleb Zhdanov, Alexandra Gambaryan, Andrei Olenin, Georgii Lisichkin, Vladimir Kukushkin

Nanostructured optical sensors for the detection of influenza virus

ID 394: Gregory Pchelkin, Vadim Davydov, Vladimir Demidov

Study of the mode composition of microstructured fiber from the parameters of the technological cycle of its production

ID 401: Alena Ivashchenko, Dmitriy Kochuev, Nikolay Davydov

Laser synthesis of aluminum oxide nanoparticles

ID 422: Mohamed Hamza, Andrey Makarov, Vladimir Podlipnov

Design of the hardware and software complex for hyperspectral imaging control

ID 433: Lyudmila Bratchenko, Vitaliya Belova, Daria Konovalova, Peter Lebedev, Elena Tupikova, Ivan Bratchenko

Surface-enhanced Raman spectroscopy for the analysis of human serum

ID 440: Ekaterina Savchenko, Elena Velichko, Polina Karpova, Darya Milenina

Development of speckle correlation sensor for studying blood flow

ID 448: Ekaterina Gryaznova, Vadim Davydov, Vasiliy Rud

Optical method for quality control of fruits in express mode

ID 452: Alena Gorshkova, Maxim Gorshkov, Vladimir Pavelyev

Amino groups on the CNT surface by a solvent-free modification using Z-Gly-OH and formaldehyde

ID 456: Roman Pavelkin, Dmitry Nesterenko, Shinji Hayashi, Victor Soifer

Anticrossing behavior of surface plasmon polaritons coupled with vibrational modes in planar plasmon structures

ID 461: Zoja Zabalueva, Olga Velukhova, Oleg Kotov, Elina Nepomnyashchaya, Elena Velichro

Optimization of the cross-correlation spectrometer parameters

ID 463: Alexey Rezvan, Victor Klimin, Maksim Solodovnik, Tatyana Zubova, Tatyana Klimina, Roman Tominov, Julia Morozova

Modification of surface relief of structures of a semiconductor material based on plasma technologies for formation elements of nanophotonics and quantum optics

ID 470: Veronica Cazac, Constantin Loshmanschii, Elena Achimova, Alexei Meshalkin, Vladimir Abashkin, Vladimir Podlipnov

Characterization of polarization holographic gratings obtained on azopolymer thin films by digital holographic microscopy

ID 473: Naresh Kumar Reddy Andra, Mahdieh Hashemi, Ramprasad Lachimala, Karuna Sagar Dasari

Truncated apodizers for engineering the point spread function

ID 477: Denis Kudryashov

Anticipating the release of the 100th issue of the journal "Computer Optics»

ID 478: Irina V. Zhilavskaya

Media Culture and its role in the development and promotion of Russian Scientific journals

ID 479: Vladimir A. Danilov

Computer optics and scientific instrumentation

ID 480: Vladimir A. Danilov

Multimode beams with periodic properties

ID 486: Serguei Murzin, Valeriy Balyakin, Carsten Gachot, Sergey Fomchenkov, Maksim Blokhin, Nikolay Kazanskiy

Reduction of the friction coefficient of silicon carbide ceramics by ultraviolet nanosecond laser treatment

Poster Session 2 - <u>Information Technologies for Earth Remote Sensing and Image Processing</u>

20 – 24 September (Online – Miro platform)

ID 1: Mukesh Boori, Komal Choudhary, Rustam Paringer, Alexander Kupriyanov
Remote sensing ecological index evaluation in Samara region Russia

ID 5: Kseniya Medvedeva
Mobile application for linear nonlinear correction with a modified reference area

ID 28: Nataly Rodionova, Svetlana Kudryashova, Aleksandr Chumbaev
Assessment of some parameters of the topsoil layer from multispectral SENTINEL 2 data in conditions of the Novosibirsk region

ID 39: Alexei Sychev, Ivan Kholopov
Comparative analysis of image noise estimation methods

ID 73: Maxim Shamshin, Denis Privezencev
Algorithm for forming a multitude of characteristic sections of the texture of the image and its use for detecting surface defects of metal rolling using a fractal image model

ID 87: Roman Kovalenko, Alexander Tashlinskii, Mikhail Tsaryov
Using threshold processing to moving object detection in the image sequence

ID 98: Mikhail Gashnikov
Image coding based on efficient representation of trivial regions in quantization

ID 99: Sergey Zraenko
Combining channels to increase the differences between coniferous and hardwood vegetation in satellite images

ID 124: Denis Nikolaev, Vadim Davydov, Vasiliy Rud
Influence of the relative position of receiving stations on the accuracy of determining the location of the object

ID 131: Igor Kudinov, Ivan Kholopov, Mikhail Nikiforov
Comparative analysis of two strategies for forming a panoramic video image

ID 144: Daniil Kozlov
Comparison of Reinforcement Learning Algorithms for Motion Control of an Autonomous Robot in Gazebo Simulator

ID 164: Radik Magdeev, Galina Safina, Alexander Tashlinkii
Comparative analysis of objective quality functions for the stochastic gradient identification method

ID 171: Andrey Kuznetsov, Mikhail Gashnikov

Investigation of the Influence of the Retouched Region Size on the RS-Images Quality

ID 172: Nikolay Glumov, Mikhail Gashnikov

Quantizer optimization based on uniform iterative expansion of quantization intervals

ID 177: Anna Denisova, Victor Fedoseev, Lyudmila Kavelenova, Natalya Prokhorova, Natalya Vlasova, Evgeniy Korchikov

Monitoring the recreational impact on unique natural objects using UAVs

ID 199: Anna Denisova, Andrey Chernov

Comparative analysis of Sentinel and MODIS data in the problem of crop classification

ID 209: Anton Alekseev, Sergei Kiselev, Maksim Grishin, Elena Stepashkina

Recognition of indications of analogue devices by the example of devices of a high-altitude-speed group

ID 228: Anton Agafonov, Alexander Yumaganov

Agent-Based Traffic Signal Control Using a Reinforcement Learning Approach

ID 229: Oleg Ivanov, Natalia Sevastianova

Clustering of pixels of multizone Earth images using a neural network

ID 230: Alexander Yumaganov, Anton Agafonov

Comparison of autonomous driving approaches

ID 237: Anastasia Lemeshko, Yegor Goshin

The effect of changing the number of levels of the wavelet transform on the result of combining multi-focus images

ID 245: Yury Nefedyev, Regina Mubarakshina, Alexey Andreev, Natalya Demina, Zoya Andreeva, Viktor Borovskih

Dynamic Parameters of the Geocenter Produced by GPS and DORIS Navigation Systems by Means of Adaptive Regression Methods

ID 248: Anatoly Novikov, Anton Pronkin

Difference method for estimating the variance of discrete white noise in a digital image

ID 259: Yuriy Avramenko, Anastasiya Popova, Gennadiy Rugnikov, Roman Fedorov

Continuous integration of remote sensing methods for Baikal natural territory research

ID 268: Andrey Kuznetsov

A new deep fake method based on background removal

ID 270: Andrey Kuznetsov, Vladimir Kondratiev
An algorithm for intrusion detection into the control system of an unmanned vehicle

ID 287: Victor Krasheninnikov, Yuliya Kuvayskova, Alexey Subbotin
Models of cylindrical images with harmonic components of the correlation function

ID 288: Oleg Goriachkin, Aleksey Borisenkov
Estimation of probabilistic characteristics of detection of moving targets on images of the space radar of remote sensing of the Earth

ID 307: Oleg Golovnin, Dmitry Rybnikov
Benchmarking of feature detectors and matchers using OpenCV-Python wrapper

ID 308: Andrey Viktorenkov, Pavel Yakimov
Development of a computer vision system for detecting defects on the inner surface of a pipe

ID 314: Valeriy Labunets, Victor Chasovskich, Nicolas Ostheimer
All Fourier-Clifford Transforms

ID 326: Gennadiy Gromilin, Nikolay Yakovenko
A method for assessing the pupil center coordinates in Eyetracking with a free head position

ID 332: Alina Bavrina, Victor Fedoseev
Watermarking with recovery capability for HGI image compression

ID 338: Alexey Borisov, Vladislav Myasnikov
Implementation of foveated self-similarity filter for GPU

ID 345: Denis Privezentsev, Konstantin Mortin
A system for detecting defects in sheet metal on images using a deep neural convolutional network

ID 349: Evgeniya Efimenko, Evgeny Myasnikov
Evaluation of dimensionality reduction techniques in the problem of person recognition by gait

ID 370: Anna Klikunova, Alexander Khoperskov
Creating a digital terrain models

ID 374: Leonid Mestetskiy, D. S. Guru, H.S. Nagendraswamy, B. H. Shekar, Channabasava Chola
Gender Identification of Fruit Flies Based on Morphological Analysis of Microscopic Images

ID 385: Kirill Kovalev, Anton Agafonov
Authentication Scheme in Vehicular Ad Hoc Networks Based on Roadside Unit Infrastructure

ID 404: Andrey Sosnovsky, Nina Vinogradova, Artem Kantsurov
A method for recovering the damaged remote sensing systems images, obtained from parallel orbits

ID 405: Yegor Goshin, Daria Arkhipova
Noise Compensation in Super Resolution Problem Using Huber Loss Function

ID 408: Mikhail Bochkarev, Yuliya Vybornova
A QIM-based Watermarking Method for 3D-mesh Integrity Protection

ID 416: Evgeny Myasnikov
Segmentation of hyperspectral images based on the estimation of data dimensionality in spatial regions

ID 420: Anton Kotov, Yegor Goshin
Hyperspectral Image Fusion Based on Bilateral Filtering Algorithm

ID 424: Victoriya Yaikova, Nikita Kharin, Elena Yakovleva, Oskar Sachenkov, Maxim Baltin, Tatyana Baltina
Kinematic analysis of human movement according to Vicon video recording

ID 434: Yuliya Vybornova
Method for construction of three-dimensional pseudo-holographic digital watermarks

ID 445: Elena Semenova
Analysis of biological electron microscope picture

ID 450: Michael Shpekin, Chingiz Mukhametshin, Alexander Semenov, Renat Salimov
High resolution orbital photogrammetry on the example of modeling selected relief elements in the Tsiolkovsky crater on the Moon

ID 472: Artyom Makovetskii, Vitaly Kober, Dmitrii Zhernov, Alekseii Voronin
Convolutional neural network in the classifying problem of point clouds in three-dimensional space

Poster Session 3 - <u>Artificial Intelligence and Data Science</u>

20 – 24 September (Online – Miro platform)

ID 4: Irina Khaymovich , Vladimir Ramzaev, Vadim Chumak
Modeling and data analysis to assess the sensitivity of the competitiveness of territories in the implementation of investment projects

ID 9: Valentin Yunusov, Sergey Demin, Tatyana Panferova
The study of correlation and spectral characteristics of human brain activity while performing cognitive tasks

ID 10: Mikhail Leontev, Dmitry Antonov, Sergey Sukhov
Robustness of spiking neural networks against adversarial attacks

ID 14: Denis Zherdev, Larisa Zherdeva
Prediction of human behavior with synthetic data

ID 15: Valentin Yunusov, Sergey Demin, Sergey Timashev
Development of a new approach to data analysis of complex systems: study of synchronization in the dynamics of solar activity parameters

ID 16: Artem Mukhin, Rustam Paringer, Natalya Ilyasova
Feature selection algorithm based on estimation of the separability of feature space using discriminant analysis

ID 25: Alena Sludnova, Vadim Shutko, Andrey Gaidel, Artem Nikonorov
Application of convolutional neural networks for the classification of tomographic data

ID 34: Vadim Shutko, Alena Sludnova, Andrey Gaidel, Artem Nikonorov
Named entities recognition in medical texts

ID 36: Leonid Petrov, Dmitry Savelyev
Analysis of the use of a recurrent neural network to predict a trend reversal in the stock market

ID 37: Dimitry Golovashkin , Liudmila Yablokova
Experimental study of the block algorithm for the difference solution of the heat equation. Implicit difference scheme

ID 57: Vadim Pechenin, Michael Bolotov, Ekaterina Pechenina
Comparison of machine learning methods for improving assembly operations

ID 58: Dmitry Ulyanov, Dmitry Savelyev
Development and research of learning algorithms for neural networks with reinforcement in the gaming industry

ID 59: Julia Agafonova, Andrey Gaidel, Alexsander Kapishnikov, Evgeniy Surovtsev
Multi-class classification of brain tumor in MRI images

ID 62: Vadim Moshkin, Dmitry Averin, Ilya Andreev
Development of a mobile system for interactive forecasting of statistical graph data

ID 71: Dmitry Stadnik, Albert Gareev, Artem Nikonorov, Asgat Gimadiev
Remaining useful life prediction based on model data for a working fluid supply station

ID 76: Alekseeva Anastasiya, Karpunina Irina, Klyachkin Vladimir
Identification of violations in monitoring the process of drinking water purification

ID 79: Klyachkin Vladimir, Alekseeva Anastasiya
Optimization of the parameters of the generalized variance algorithm

ID 92: Vadim Moshkin, Dmitry Yashin, Irina Moshkina, Nadezhda Yarushkina
General algorithm for calculating the aggregated time series forecast

ID 97: Kirill Pugachev
Block methods of feature points matching based on the principle of conformity

ID 105: Yana Borovskaya, Alexander Grebeshkov
The task of analyzing the interoperability of industrial Internet platforms and sensor systems based on the ontological approach

ID 106: Vadim Pechenin, Ekaterina Pechenina, Alexander Kupriyanov
Reducing the labor intensity of technological operations using computer vision system

ID 110: Nikita Lukashev, Vadim Davydov
Multiple access integration with ClickHouse for big data processing

ID 122: Diera Pirova, Borislav Zaberzhinsky, Andrey Mashkov
Forecasting the Respiratory Tract Infections Development on the Basis of Machine Learning and Climatic Factors Analysis With the Use of High-Level Programming Languages

ID 125: Igor Olyanich
Developing a new hybrid deep learning recommendation system

ID 136: Aleksandra Zhdanova, Aleksandr Kupriyanov, Anastasia Khoroshilova
Prediction of human behavior based on analysis of social networks data

ID 138: Sergei Repin, Alexander Kupriyanov
Algorithms based on neural network for segmentation of defects on metal sheet images

ID 139: Andrei Meshcheriakov, Sergey Popov
Improving the speed and accuracy of the SORT object tracking algorithm using MPI technology

ID 161: Ekaterina Gurlina, Rustam Paringer
Method for revealing texture properties of specified image classes

ID 179: Igor Lvovich, Yakov Lvovich, Andrey Preobrazhenskiy, Oleg Choporov
Modeling and optimization of processing large data arrays in information systems

ID 184: Elizaveta Rudinskaya, Rustam Paringer
Analysis of the influences of data on the training of Haar cascades for face detection

ID 186: Andrei Melekhin
Development of engineering calculator to copmutation the heat flux for heating of buildings on extended feature settings

ID 187: Ihar Kilbas, Rustam Paringer, Andrey Gaidel, Sergey Rovnov, Yegor Goshin
A neural network model for tracking marker objects in a video

ID 191: Vladislav Egorov, Olga Maksimova, Boris Kryzhanovsky, Leonid Litinskii
Critical behaviour of a heat capacity for three-dimensional Ising model

ID 195: Olga Kurbatova, Alexander Kupriyanov
Text mining algorithms for classifying news messages

ID 211: Irina Matveeva, Lyudmila Bratchenko, Oleg Myakinin
Effect of the noise in Raman basis spectra of amino acids on their reconstruction from a mixture by Multivariate Curve Resolution (MCR) analysis

ID 235: Violetta Chebakova, Lenar Kashapov, Ramil Kashapov, Nail Kashapov
One of the Methods of Numerical Optimization in Chemical Kinetics Problems

ID 238: Vseslav Vinokurov, Irina Matveeva, Yulia Khristoforova, Oleg Myakinin, Ivan Bratchenko, Lyudmila Bratchenko, Alexander Moryatov, Alexander Machikhin, Sergey Kozlov, Valery Zakharov
Neural network classifier for hyperspectral images of skin pathologies

ID 243: Alexey Andreev, Regina Mubarakshina, Yura Nefedyev
Analysis of the Earth's pole dynamics using regression modeling

ID 247: Alexander Vinogradov, Vladimir Ryazanov
Dealing with realizations of hidden regularities in data as independent generalized precedents

ID 262: Oleg Strashko, Ilya Kuznecov, Dmitriy Guskov
A model for processing and presenting weather information in the use of unmanned aerial vehicles based on fuzzy logic elements

ID 274: Andrey Sitnikov
Investigation of the possibility of using methods based on convolutional neural networks for eye tracking

ID 276: Aleksandr Borodinov, Vladislav Myasnikov, Anton Agafonov
Reconstruction of public transport trips

ID 283: Dmitriy Borisov, Aleksandr Blagov
The Lomb-Scargle method application in finding the periodogram of the activity of laboratory animals

ID 290: Yuliya Kuvayskova, Victor Krasheninnikov, Alexey Subbotin
Forecasting the technical state of an object based on the composition of machine learning methods

ID 295: Iliya Grachev, Vadim Pechenin
Comparative analysis of methods for assessing assembly dimensional chains

ID 298: Vladimir Mokshin, Nikita Stadnik, Alexander Zolotukhin
Development of an information system for organizing the work of a production workshop

ID 300: Usman Tasuev, Esmira Alisultanova, Natalya Anatolevna
Technologies of neural networks for forecasting and evaluation of startup projects

ID 301: Valerian Zheltov, Pavel Zheltov
Symbol solvers for morphologic and syntax analysis

ID 302: Vladimir Mokshin, Skachkova Elena
Researching Machine Learning Methods for Diagnosing Women's Health

ID 317: Mariia Mazing, Anna Zaitceva, Yuriy Kislyakov, Vadim Davydov
Medical diagnostic intelligent system for recognizing of the functional state of a person

ID 331: Maksimilian Khotilin
The technology of constructing an informative feature of a natural hyperspectral image area for the classification problem

ID 354: Alexander Yumaganov
Comparison of Siamese neural network architectures in the problem of similar code sequences search

ID 367: Igor Mishin, Olga Saltykova
Visualization of the results of machine learning when implementing an automated phaser

ID 371: Evgeniy Minaev, Vladimir Fursov, Anton Kotov
Visual odometry technology from reference surface observations with correction of coordinate estimates

ID 372: Evgeny Maiorov, Oleg Saprykin, Miranush Darbinan
Validation of the city's transport model using Mapbox Movement data

ID 373: Olga Zhuravleva, Natalia Savhalova, Andrei Komarov, Denis Zherdev, Anna Demina, Aleksandr Nesterov, Artem Nikonorov
Computational Analysis of the Aesthetic Content Relating to the Fine-Art Image

ID 375: Jamil Safarov, Sergey Efimov, Sergey Jatsun
Controlled hydrosphere monitoring by a group of robots

ID 387: Evgeniy Kudashov, Michael Bolotov, Vadim Pechenin
Evaluation of the impeller shroud blade contacts parameters using machine learning

ID 388: Larisa Zherdeva, Evgeniy Minaev, Denis Zherdev, Vladimir Fursov
Synthetic dataset for navigation tasks of autonomous systems and ground robots

ID 393: Dmitry Berlin, Yegor Goshin
Development and research of an information system for recognition of a three-dimensional object by its image

ID 402: Evgeniy Minaev
Investigating Machine Learning Based on Fractal Compression for Image Recognition

ID 406: Larisa Zherdeva, Denis Zherdev, Evgeniy Minaev
Ground robot navigation with Deep Reinforcement Learning in immersive environment

ID 410: Andrey Akimov, Svetlana Mustafina, Sofia Mustafina
Comparison of semantic convolutional neural networks on the example of fracture segmentation in asphalt images

ID 413: Nikita Yarychenko
Development of algorithms for clustering images in social networks based on context highlighting

ID 419: Nikita Svyatov, Alexander Blagov
Time series analysis and forecasting

ID 426: Julia Agafonova, Margarita Rusakova
Convolutional neural network for detecting pathological changes on electrocardiograms

ID 432: Anton Kotov, Yegor Goshin
A method for refining the motion parameters based on quaternions

ID 438: Vladimir Mokshin, Babakhan Kurbanov, Timur Tukhbatullin, Zulfiya Khanova
Research of methods for predicting performance indicators on the example of an oil field

ID 441: Aleksandr Borodinov, Vladislav Myasnikov, Anton Agafonov
Choosing the optimal dimension of the feature space in the reconstruction of user preferences

ID 443: Marina Murtazina, Tatiana Avdeenko
Classification of EEG Data with WEKA

ID 457: Alexander Kolsanov, Nikolai Popov, Irina Aiupova, Konstantin Dobratulin, Andrey Gaidel, Anna Ivleva
Development of a software complex for the diagnosis of dentoalveolar anomalies using neural networks

ID 458: Natalia Kravtsova
Development of an algorithm for forming a set of informative areas of the spatial spectrum for the classification of texture images

ID 462: Oleg Golovnin, Nikita Perevozchikov
E-STGCN: Enhanced spatial-temporal graph convolutional network for road traffic forecasting

ID 466: Anna V. Kuznetsova, Yuriy Shtyrlov
The application of machine learning in the oil and gas sector

ID 474: Alexander Kolsanov, Nikolai Popov, Irina Aiupova, Anna Ivleva, Andrey Gaidel, Konstantin Dobratulin
Identification of cephalometric reference points of hard tissues of the skull on

ID 476: Yulia Pchelkina, Ivan Alimenkov
Analysis of huge wave and a new mathematical model that allows for an exact solution