Program of the Xth Majorov International Conference on Software Engineering and Computer Systems

December 20-21, 2018, Saint Petersburg, Russia

ITMO University, Kronverkskiy pr., 49, lit. A, rooms: 285, 365, 371, 372, 375, 466

Thursday, 20.12.18

Time	Location	Program
09:30 – 10:00		**Conference Registration**
10:00 – 10:30	285	**Opening of the Xth Majorov International Conference**
10:30 – 11:20		Keynote talk: «Self-Driving Cars: Difficulties vs Opportunities? », by Boris Ivanov, *StarLine*
		Sessions (a)
11:40 – 13:40	375	Software Engineering (1a)
11:40 – 13:00	371	Computer Systems and Networks (2a)
	372	Computer Security (3)
13:00 - 14:10	365	Coffee talks, **Poster & Demo session**
		Sessions (b)
14:10 – 16:25	375	Software Engineering (1b)
13:30 – 14:55	371	Computer Systems and Networks (2b)

Friday, 21.12.18

Time	Location	Program
10:00 – 10:40	285	**Keynote talk:** «Software defined robofacturing», by Dmitry Rudnitsky, **TRA Robotics**.
10:45 – 11:30		**Keynote talk:** «Self Sovereign Identity: on DIDs and more», by Dirk Thatmann, *T-Labs*
		Sessions (a)
11:40 – 13:25	371	Cyber-Physical Systems (4a)
11:40 – 13:50	372	Multimedia Technologies and Computer Vision (5a)
13:25 - 14:35		**Break**
		Sessions (b)
14:00 – 15:35	371	Cyber-Physical Systems (4b)
14:35 – 17:00	372	Multimedia Technologies and Computer Vision (5b)
17:10 – 17:30	466	**Official closing of the Xth Majorov International Conference**
17:30	365	BLACK DAY HACK in ITMO University

Software Engineering

Chairman – **Igor Bessmertnyi,** vice-chairman – Ivan Perl

Session 1a, 20.12.18, 11:40 – 13:40, room 375

№	Time	Duration	Authors	Title
			Full presentations	
1	11:40	15m	Konstantin Mazunin *(ITMO University)*	Planning in Software Aggregation Systems
2	11:55	15m	Oleg Doronin, Dergun Karina and Andrey Dergachov *(ITMO University)*	Automatic fuzzy-scheduling of threads in Google Thread Sanitizer to detect errors in multithreaded code
3	12:10	15m	Kirill Uryvaev *(ITMO University)*	Developing a neural network learning library for solving time series forecasting problems
4	12:25	15m	Ildar Baimuratov and Dmitry Mouromtsev *(ITMO University)*	Logic Graphs: A complete visualization method for logical languages based on Ch. S. Peirce's existential graphs
			Short presentations	
5	12:40	10m	Svyatoslav Oreshin and Lubov Lisitsyna *(ITMO University)*	Approach to predicting the behaviour of complex systems based on machine learning methods
6	12:50	10m	Valeriya Shulmina *(ITMO University)*	PLR: automated attestation of laboratory works on the course "operating systems"
7	13:00	10m	Gulim Auken and Alexander Belozubov *(ITMO University)*	Programmable decentralized information systems
8	13:10	10m	Anna Shurtina, Andrey Lyamin and Elena Cherepovskaya *(ITMO University)*	Using learning analytics in research of learners' interactions with content
9	13:20	10m	Vladislav Fishchenko, Anastasia Kulikova, Ekaterina Derbeneva, Elnara Mamedova and Ilya Isaev *(ITMO University)*	Use of Technology for Development Adaptive Chatbot Assistant
10	13:30	10m	Nataliia Matrosova and Dmitriy Shtennikov *(ITMO University)*	Study Of Correlation Between Theory Learning Time And Testing Results
	Total:	**2h**		

Software Engineering

Chairman – **Igor Bessmertnyi,** vice-chairman – Ivan Perl

Session 1b, 20.12.18, 14:10 – 16:25, room 375

№	Time	Duration	Authors	Title
			Full presentations	
1	14:10	15m	Sergey Rakov, Vladislav Bortnikov, Andrey Dergachov and Alexandr Tropchenko *(ITMO University)*	GAN-based loss functions for semantic segmentation
2	14:25	15m	Dmitriy Anoshchenkov and Aleksandr Penskoi *(ITMO University)*	Using Lua as a tool for describing the computational process based on data transfers between processor units.
3	14:40	15m	Alexander Yarkeev, Alexander Pashnin, Ivan Uskov, Alexey Pismak and Evgenij Tsopa *(ITMO University)*	Instance collision resolving algorithm in natural language processing
4	14:55	15m	Iaroslav Baranov *(ITMO University)*	Improving listening skills in language learning with spaced repetition technique
5	15:10	15m	Bulat Kubekov, Leonid Bobrov, Elena Savelyeva, Vitaliy Naumenko and Anar Utegenova (Kazakhstan, Institute of Information and Computational Tehnologies, Kazakh - German University, Novosibirsk state university of Economics and Management)	Project-competent paradigm of knowledge representation of the three-level engineering education system
6	15:25	15m	Anna Bakanova and Aleksey Shikov *(ITMO University)*	Ontology-based competency model for personalized corporate learning
7	15:40	15m	Dmitry A. Shuklin and Stanislav A. Sivinskiy *(ITMO University)*	The question of intellectualization of analysis of educational data
			Short presentations	
8	15:55	10m	Lyusiena Miroslavskaya and Igor Bessmertny *(ITMO University)*	Extracting concepts from natural language texts based on context
9	16:05	10m	Tatiana Tatarnikova, Ekaterina Poymanova (*Saint-Petersburg Electrotechnical University ETU "LETI", Saint-Petersburg State University of Aerospace Instrumentation*)	Storage Space Resource Management Models
10	16:15	10m	Aigul Nugmanova, Irina Chernykh, Mikhail Khovrichev and Anna Bulusheva *(ITMO University)*	Unsupervised Training of Automatic Dialog Systems for the Customer Support Service
	Total:	**2h15m**		

Computer Systems and Networks

Chairman – Taufik Aliev, vice-chairman – Pavel Balakshin

Session 2a, 20.12.18, 11:40 – 13:00, room 371

№	Time	Duration	Authors	Title
full			**Full presentations**	
1	11:40	15m	Ivan Slastikhin, Vladimir Bogatyrev and Ilya Noskov *(ITMO University)*	The simulation model of the system with aggregated channels and redundant transmissions on the multiple access level
2	11:55	15m	Alexey Mulyukin and Ivan Perl *(ITMO University)*	Model execution cloud platform architecture
3	12:10	15m	Sergei Zhmylev, Ilya Martynchuk and Valeriy Kireev *(ITMO University)*	Analytical methods of nonstationary processes modeling
4	12:25	15m	Anatoly Bogatyrev, Sergei Liubich, Stanislav Bogatyrev, Fabian Wahle and Alexey Vanin *(NEO Saint Petersburg Competence Center)*	The Model of Network Map and Data Placement in the Distributed Decentralized Storage Platform
			Short presentations	
5	12:40	10m	Aleksey Derkach, Sergey Aleksankov and Vladimir Bogatyrev *(ITMO University)*	Model of cluster reliability with support of continuity of computational process in the migration of virtual machines
6	12:50	10m	Elizaveta Kormilitsyna and Sergei Bykovskii *(ITMO University)*	Development of tools for balancing the computation load in multiprocessor system
	Total:	*1h20m*		

Session 2b, 20.12.18, 13:30 – 14:55, room 371

№	Time	Duration	Authors	Title
			Full presentations	
1	13:30	15m	Stanislav Bogatyrev, Anatoly Bogatyrev, Sergei Liubich and Fabian Wahle *(NEO Saint Petersburg Competence Center)*	Zero-Knowledge Data Validation Method based on the Homomorphic Hash Function in the Distributed Decentralized Storage Platform
2	13:45	15m	Alexey Vanin and Vladimir Bogatyrev *(ITMO University)*	Push-gossip protocol efficiency with network topology propagation
3	14:00	15m	Nickolay Goryachev and Gleb Rogozinsky *(The Bonch-Bruevich State University of Telecommunication)*	Yamaha TX-81Z FM Synthesizer Modeling in Csound
			Short presentations	
4	14:15	10m	Liudmila Muraveva-Vitkovskaia and Martin Raila *(ITMO University)*	Evaluation of functionality's efficiency of computer systems with heterogeneous dataflow
5	14:25	10m	Elena Boldyreva *(ITMO University)*	Development of the dynamic model of the information-management system
6	14:35	10m	Tatiana Tatarnikova and Oleg Kutuzov *(Saint-Petersburg Electrotechnical University ETU "LETI", Saint-Petersburg State University of Aerospace Instrumentation)*	The procedure for evaluation the self-similar network traffic properties
7	14:45	10m	Ilya Noskov, Vladimir Bogatyrev and Ivan Slastikhin *(ITMO University)*	Simulation of computer network with switch and packet reservation
	Total:	*1h25m*		

Computer Security

Chairman – Andrey Sheglov, vice-chairman – Alexandr Ogolyuk

Session 3, 20.12.18, 11:40 – 13:00, room 372

№.	Time	Duration	Authors	Title
			Short presentations	
1	11:40	10m	Azamat Kulmakhanov *(ITMO University)*	Analysis of methods for protecting information transmitted via fiber-optic communication lines
2	11:50	10m	Maksim Pakulin *(ITMO University)*	The concept of network security in automated process control systems
3	12:00	10m	Timur Platonov and Alexander Ogolyuk *(ITMO University)*	Web Application Firewalls in the modern world
4	12:10	10m	Timur Platonov *(ITMO University)*	Overview of encoders typical patterns and methods of their detection
5	12:20	10m	Vladimir Kolomoitcev and Vladimir Bogatyrev *(ITMO University)*	Computational complexity of the method for estimating the probability of threat detection by a system of secure access.
6	12:30	10m	Anton Kurako and Sergei Bykovskii *(ITMO University)*	Protecting Data Privacy using Zero-Knowledge Cryptography
7	12:40	10m	Irina Brysina and Tatyana Markina *(ITMO University)*	IOT security levels
8	12:50	10m	Zhengqing Wang and Tatiana Markina *(ITMO University)*	Research on code obfuscation technology
	Total:	*1h20m*		

Cyber-Physical Systems

Chairman – Aleksei Platunov, vice-chairman – Alexandr Penskoi

Session 4a, 21.12.18, 11:40 – 13:25, room 371

№.	Time	Duration	Authors	Title
Full presentations				
1	11:40	15m	Danila Nikiforovskii, Ivan Deyneka and Daniil Smirnov *(ITMO University)*	Features of hardware implementation of Particle Swarm Optimization (PSO) on FPGA
2	11:55	15m	Elisey Litvinov, Ivan Deyneka and Artem Aleinik *(ITMO University)*	Optical transceivers characteristics estimation using FPGA
3	12:10	15m	Eleonora Dorofeeva, Danila Nikiforovskii and Ivan Deyneka *(ITMO University)*	Features of the hardware implementation of real time Hough transform on FPGA
4	12:25	15m	Vladislav Shmatkov, Sergei Spynu and Vladimir Pimenov *(ITMO University)*	Prototype platform for testing heterogeneous networks in IoT enviroment
5	12:40	15m	Sergey Chuprov, Ilya Viksnin, Maria Usova and Julia Kim *(ITMO University)*	Intersection Management Tasks in Mobile Robotic System with Decentralized Control
Short presentations				
6	12:55	10m	Stepan Gavrilov, Aidana Kyzdarbekova and Stanislav Reznikov *(ITMO University)*	Neurocomputer interfaces for detecting control signals of bionic devices based on the analysis of physiological and nervous processes in human
7	13:05	10m	Nikita Tursukov *(ITMO University)*	Model of functioning of unmanned aerial vehicles in the robot simulation environment V-REP
8	13:15	10m	Maria Usova and Ilya Viksnin *(ITMO University)*	Smart manufacture model
	Total:	*1h45m*		

Cyber-Physical Systems

Chairman – Aleksei Platunov, vice-chairman – Alexandr Penskoi

Session 4b, 21.21.18, 14:00 – 15:35, room 371

№	Time	Duration	Authors	Title
			Full presentation	
1	14:00	15m	Tatyana Astakhova, Natalia Verzun, Mikhail Kolbanev and Alexey Shamin (Nizhny Novgorod State University of Engineering and Economics, St. Petersburg Electrotechnical University "LETI", St. Petersburg State University of Economics)	A model for estimating energy consumption seen when nodes of ubiquitous sensor networks communicate information to each other
			Short presentations	
2	14:15	10m	Danila Shipaev *(ITMO University)*	Software tool of the stand SDK 1.1M
3	14:25	10m	Arkady Ivashchenko and Pavel Korepanov *(ITMO University)*	Automatic generation of factory production schedule
4	14:35	10m	Alexander Gaiosh *(ITMO University)*	Synthesis methods for reconfigurable real-time computational platform
5	14:45	10m	Dranitsa Alexander and Platunov Aleksei *(ITMO University)*	RISC-V based platform for cyber-physical systems design
6	14:55	10m	Irina Deeva *(ITMO University)*	Multiscale Personality Modeling in the Digital Environment
7	15:05	10m	Dmitriy Zyryanov, Natalya Denissova and Igor Bessmertnyi *(D. Serikbayev East Kazakhstan state technical university, ITMO University)*	Analysis and synthesis of typical behavioral structures for cyber physical systems agents
8	15:15	10m	Darya Polyakova and Philipp Perepelitca *(ITMO University)*	Features of the use of software algorithms and technologies of generative design to optimize products in autodesk netfabb
9	15:25	10m	Yaroslav Gorbachev *(ITMO University)*	Conceptual model and definition method of computational process implementation
	Total:	*1h35m*		

Multimedia Technologies and Computer Vision

Chairman – Artem Smolin, vice-chairman – Dmitry Zhdanov

Session 5a, 21.12.18, 11:40 – 13:50, room 372

№	Time	Duration	Authors	Title
			Full presentations	
1	11:40	15m	Maxim Sorokin *(ITMO University)*	Recovery of optical parameters of a scene using fully-convolutional neural networks
2	11:55	15m	Aleksandr Mezhenin, Vera Izvozchikova and Viktorija Ivanova *(ITMO University, Orenburg State University)*	Use of point clouds for video surveilance system cover zone imitation
3	12:10	15m	Dmitrij Afonkin *(ITMO University)*	The problem of physically based rendering in the cloud computing system
4	12:25	15m	Assel Romanova, Irina Gotskaya and Dmitriy Shuklin *(Russian State Pedagogical University, ITMO University)*	Perspectives of using educational mobile virtual technologies in higher education
5	12:40	15m	Aleksandr Mezhenin and Alena Zhigalova *(ITMO University)*	Similarity analysis using Hausdorff metrics
6	12:55	15m	Artem Andreev *(ITMO University)*	Application of texture maps with MIP levels generated using dual filtering, in tasks of realistic lighting and reflection rendering in a presence of area lights.
			Short presentations	
8	13:10	10m	Aleksandr Mezhenin and Yuliya Trushin a *(ITMO University)*	Improving Baked Textures for a Content Creator
9	13:20	10m	Darya Belova *(ITMO University)*	Using VR technologies as a part of psychocorrection procedures
10	13:30	10m	Andrey Zhdanov *(ITMO University)*	Analysis of the visual perception conflicts in mixed reality systems
11	13:40	10m	Aleksandra Govorova *(ITMO University)*	Virtual Reality as a new way to train people to be safe in emergencies
12	13:50	10m	Irina Stokolias *(ITMO University)*	360 degree image processing automation
	Total:	**2h20m**		

Multimedia Technologies and Computer Vision

Chairman – Artem Smolin, vice-chairman – Dmitry Zhdanov

Session 5b, 21.12.18, 14:35 – 17:00, room 372

№	Time	Duration	Authors	Title
			Full presentations	
1	14:35	15m	Valery Sizikov, Daria Kondulukova and Andrei Sergienko *(ITMO University)*	Improving the accuracy of restoring a distorted image via determining the distortion parameters from the Fourier spectrum,
2	14:50	15m	Valery Sizikov and Aleksandra Dovgan *(ITMO University)*	Reconstruction of images smeared non-uniformly
3	15:05	15m	Aleksei Lavrov and Nikita Marinichev *(ITMO University)*	Estimation of the Quantity of Errors in the Optitrack Motion Capture System
4	15:20	15m	Vladimir Gromov and Pavel Kustarev *(ITMO University)*	3D models matching and fusion with the use of 2D disparity maps
5	15:35	15m	Tatiana Osipenko *(ITMO University)*	Устранение шума с сохранением мелких деталей в фотореалистичных изображениях, вычисленных методами стохастической трассировки лучей
			Short presentations	
6	15:50	10m	Aleksei Lavrov and Valeriy Sizikov *(ITMO University)*	Evaluation of the Restoration Error of the Partly Overlapped Spectral Lines
7	16:00	10m	Dmitrii Burtykin *(ITMO University)*	Problems with development of an effective ray tracing library using Vulkan API
8	16:10	10m	Aleksandr Smirnov, Evgeniy Trunin, Sizov Pavel, Ilya Isaev, Ivan Chizhikov, Pavel Filonov, Artur Ovsepyan, Vladislav Chernykh, Shakir Kudla с hmedov, Larisa Murt and Azat Nazmiev *(North-Western state medical University I.I. Mechnikov, Saint-Petersburg Electrotechnical University "LETI", ITMO University)*	The new prospects in the diagnosis the papillary thyriod carcinoma using the technical vision systems
9	16:20	10m	Artem Smolin and Konstantin Malyshev	Multimodal Perception in Virtual Reality Environments
10	16:30	10m	Andrew Lemeshev *(ITMO University)*	Methods for efficiently filtering the synthesized image to solve problems of realistic real-time rendering
11	16:40	10m	Aleksei Denisov and Sergei Bykovskii *(ITMO University)*	Using Neural Networks for Stereo Matching
12	16:50	10m	Miguelangel Perezortiz *(ITMO University)*	Visualization and Segmentation of Tropical Cyclones in Satellite images using the Dvorak technique.
	Total:	*2h25m*		

Poster & Demo session, 20.12.18, 13:00 – 14:10, room 365

№	Authors	Title
1	Anna Lavrova, Larisa Sopronenko, Aleksei Lavrov	Development of interactive application for viewing different color schemes for interior of Feodorovsky Gorodok Refectory
2	Aleksandr Penskoi	CAD for low-level orchestration of a real-time heterogeneous multi-processor system
3	Babushkin A., Danenkov I., Babikov A.	AR PCB assistant
4	Tishchuk B., Emelyanov D.	Onboard computer for mobile robotic systems.
5	Antonov A., Andreev V., Didin E., Babushkin A., Denisov A., Dranitsa A., Emelyanov D., Gromov V., Kurylev D., Tishchuk B.	Mobile 3D Scanner
6	Zhovnitsky V., Kluchev V., Yastrebov E., Kluchev A.	Mobile platform for researching unmanned driving algorithms
7	Korenkov Y., Loginov I., Kuzenkova E., Dergachev A., Lazdin A.	Syntax-based text editor