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	375	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	375	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 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 375

№	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 375

№	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 – 14:00, 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 Trushina *(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 Kudlachmedov, 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	Кореньков Ю.Д., Логинов И.П., Кузенкова Е.В., Лаздин А.В., Дергачев А.М.	Модель редактирования текста на основе синтаксиса
2	Пенской А.В., Гайош А.И., Иващенко А.А., Анощенков Д.И., Емельянов Д.В., Румянцева М.Ю., Корепанов П.Ю., Андреев В.В., Зернов В.А.	NITTA: A CAD for low-level orchestration of a real-time heterogeneous multi-processor system
3	Перл И.А., Мулюкин А.А., Пелин В.О., Мазунин К.Ю.	sdCloud project
4	Сизиков В.С., Довгань А.А., Сергиенко Д.А, Кондулукова А.Н.	Разработка новых компьютерных технологий восстановления искаженных (смазанных, дефокусированных, зашумленных) изображений
5	Летов Н.Е., Кузьмин К.С., Штенников Д.Г.	Метод обеспечения целостности ПО мобильных платформ с использованием блокчейна
6	Лисицына Л.С., Орешин С.А.	Подход к прогнозированию поведения сложных систем на основе методов машинного обучения
7	Лаврова А.В., Сопроненко Л.П., Лавров А.В.	Development of interactive application for viewing different color schemes for interior of Feodorovsky Gorodok Refectory
8	Тищук Б.Ю., Емельянов Д.В.	Бортовой компьютер мобильных роботизированных систем
9	Бабушкин А.П., Бабиков А.А., Даненков И.С.	AR PCB Assistant
10	Ткешелашвили Н.М., Яркеев А.С., Усков И.В., Клименков С.В.	Базы данных на основе семантической сети
11	Шуртина А.А., Лямин А.В., Череповская Е.Н.	Using learning analytics in Research of Learners' Interactions with Content
12	Горбачев Я.Г., Драница А.В., Шипаев Д.А., Платунов А.Е.	Инструментальные средства проектирования кибер-физических систем
13	Полякова Д.А., Перепелица Ф.А.	Особенности использования программных алгоритмов и технологий генеративного дизайна для генерации изделий в среде Autodesk NetFabb

14	Радченко И.А., Яркин А.С., Махнева А.В., Машенкова А.А.	Разработка системы автоматизированного распознавания онкологии на МРТ-снимках головного мозга
15	Антонов А.А., Андреев В.В., Бабушкин А.П., Денисов А.К., Дидин А.С., Драница А.В., Емельянов Д.В., Громов В.В., Курылёв Д.А., Тищук Б.Ю.	Mobile 3D Scanner
16	Жмылёв С.А., Мартынчук И.Г., Киреев В.Ю., Алиев Т.И., Турков Н.Е.	CALER: A cross-platform utility for cloud backend systems autoscaling optimization
17	Ключев А.О., Жовницкий В.А., Ключев В.А., Буланцов А.М., Морозов Д.О., Ястребов Е.Е.	Мобильная платформа для исследования алгоритмов беспилотного вождения
18	Белова Д.А., Билый А.М.	Модели и методы разработки приложений виртуальной реальности для психокоррекции на основе психотипа человека
19	Баканова Анна, Шиков Алексей Николаевич	Повышение эффективности персонализированного корпоративного образования через внедрение онтологий
20	Шульмина В.Е. (Авксентьева)	PLR: Программа проверки лабораторных работ по курсу "Операционные системы".
21	Шуклин Д.А., Сивинский С.А.	Модели и методы интеллектуализации поддержки принятия решений в условиях смешанного обучения
22	Богатырев В.А., Носков И.И., Деркач А.Н., Коломойцев В.С., Паршутина С.А., Сластихин И.А.	Надежность, отказоустойчивость, безопасность распределенных вычислительных систем
23	Балакшин П.В., Беленко М.В., Бурым Н.С., Муратова У.Д.	Исследование современных систем автоматического распознавания и синтеза речи и их применеине