

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

12-13 December, 2019, Saint Petersburg, Russia

The conference will be held on 12-13 December 2019 in the creative space «**Tochka kipeniya**»

**Address:** Medikov pr, building 3, Saint Petersburg, Russia.

## Thursday, 12.12.19

Time	Location	Program
09:30 – 10:00	Michelangelo's entrance	Conference Registration
10:00 – 10:30	Michelangelo	Opening of the XI Majorov International Conference
10:40 – 11:40	Michelangelo	Session «Software Engineering»
	Plato	Session «Cyber-Physical Systems»
	Aristotle	Session «AR/VR/MR and Multimedia»
11:40 - 12:00	Grand lobby	Coffee break
12:00 – 13:30	Michelangelo	Session «Software Engineering»
	Plato	Session «Computer Systems and Networks»
	Aristotle	Session «AR/VR/MR and Multimedia»
13:30 - 14:30	Grand lobby	Lunch time (lunch is not provided)
14:30 - 15:10	Michelangelo	<b>Keynote talk:</b> «AR/VR technologies in education», by Dmitrii Kirillov, <i>President of Modum Lab</i>
15:10 - 15:50	Michelangelo	<b>Invited talk:</b> «The cyberpunk that we've deserved», by Artem Smolin, <i>ITMO University</i>
15:50 - 17:00	Grand lobby	Demo session
17:00 - 18:30	Michelangelo	Session «Software Engineering»
17:00 - 18:00	Plato	Session «Computer Systems and Networks»
17:00 - 18:10	Aristotle	Session «AR/VR/MR and Multimedia»

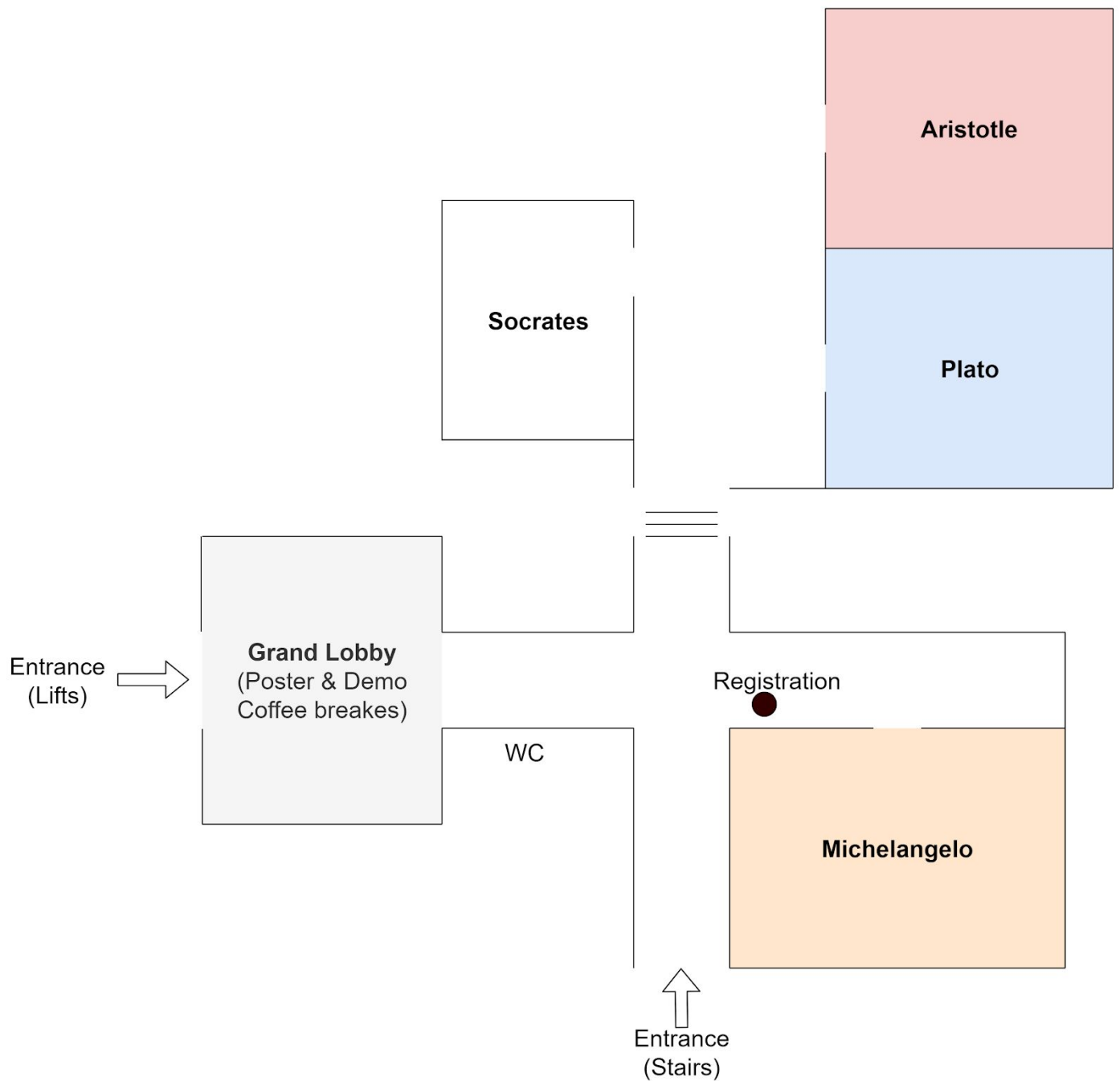
## Friday, 13.12.19

Time	Location	Program
10:00 – 11:30	Michelangelo	Session «Software Engineering»
	Plato	Session «Computer Systems and Networks»
10:00 – 11:10	Aristotle	Session «Cyber-Physical Systems»
11:30 - 12:00	Grand lobby	Coffee break
12:00 – 13:30	Michelangelo	Session «Software Engineering»
	Plato	Session «Computer Systems and Networks»
	Aristotle	Session «Cyber-Physical Systems»
13:30 - 14:30	Grand lobby	Lunch time (lunch is not provided)
14:30 - 15:30	Michelangelo	<b>Keynote talk:</b> «Computer Music Technologies: Software Engineering and Computer Systems at the Sound Frontier», by Gleb G. Rogozinsky, <i>Head of SUT Medialab</i>
15:30 - 16:00	Michelangelo	<b>One Minute Madness.</b> The poster authors should make a short presentation (1min) about their posters.
16:00 - 17:00	Grand lobby	<b>Banquet &amp; Poster session</b>
17:00 - 17:30	Michelangelo	Closing Ceremony

# Plan

**Location:** «Tochka kipeniya»

**Address:** Medikov pr, building 3, Saint Petersburg, Russia.



# Keynotes



## **Dmitrii Kirillov**

President of Modum Lab

Speech: «**AR/VR technologies in education**»

### **Speech description**

The speech covers such topics as:

- Real practice of applying VR / AR educational projects
- How companies, universities and schools use VR / AR technology for education
- What indicators can be affected by VR / AR projects
- Comprehensive application of VR / AR in conjunction with classic learning formats



## **Artem Smolin**

Head of Center for Usability and Mixed Reality, ITMO University

Speech: «**The cyberpunk that we've deserved**»

### **Speech description**

The past, present and future of virtual, augmented and mixed reality technologies. Technologies of virtual, augmented and mixed reality and their reflection in the mainstream. Further prospects, interdisciplinarity, foresight.



## **Gleb G. Rogozinsky**

Head of SUT Medialabs и Assoc. Prof. of Sound Directing Dept. SIFT

Speech: «**Computer Music Technologies: Software Engineering and Computer Systems at the Sound Frontier**»

### **Speech description**

The speech reviews the software engineering aspects as the core element of computer music systems (r)evolution. From IBM 704 running MUSIC I, the first program to make music on computer, to the latest researches at the sound technologies frontier - music technology always comes together with the software engineering systems.

# Software Engineering

Chairman – Igor Bessmertny, vice-chairman – Ivan Loginov

12.12.19, 10:40 – 11:40, room “Michelangelo”

N	Time	Duration	Authors	Title
Long presentations				
1	10:40	20m	Oleg Doronin, Dergun Karina, Andrey Dergachev and Aglaya Ilina	Fuzzing testing multithreaded applications based on waiting ( <b>the best paper candidate</b> )
2	11:00	20m	Alexander Vodyaho, Natalia Zhukova, Michael Chervontsev and Saddam Abbas	Agile Architecture Automata Based Approach to Monitoring Systems Development
Short presentations				
3	11:20	10m	Nikita Vozisov, Ilya Gosudarev and Irina Gotskaya	JavaScript animation libraries comparison
4	11:30	10m	Valentyn Sichkar and Sergey Kolyubin	Preprocessing methods of Traffic Signs images for effective classification with CNN
Total:		1h		

12.12.19, 12:00 – 13:30, room “Michelangelo”

N	Time	Duration	Authors	Title
Long presentations				
1	12:00	20m	Elena Kuleshova, Anatoly Marukhlenko, Vyacheslav Dobritsa and Maxim Tanygin	Multi-threaded data processing system based on cellular automata
2	12:20	20m	Artem Vostropyatov, Dmitry Kulikov and Kamo Abramyan	Automated solution to technological problems in an information management environment
3	12:40	20m	Nikita Mamaev, Aigul Nugmanova, Mikhail Khovrichiev, Anna Bulusheva and Irina Chernykh	Cross-lingual Training for Retrieval-based Dialogue Systems
Short presentations				
4	13:00	10m	Dmitrii Ubskii, Yuri Matveev and Wolfgang Minker	Impact of Using a Bilingual Model on Kazakh--Russian Code-Switching Speech Recognition
5	13:10	10m	Danil Demashov and Ilya Gosudarev	Node.js frameworks performance comparison
6	13:20	10m	Egor Dubenetskiy, Evgenij Tsopa, Sergey Klimenkov and Alexander Pokid	Designing a model of contexts for word-sense disambiguation in a semantic network
Total:		1h30m		

# Software Engineering

Chairman – Igor Bessmertny, vice-chairman – Ivan Loginov

12.12.19, 17:00 – 18:30, room “Michelangelo”

N	Time	Duration	Authors	Title
Long presentations				
1	17:00	20m	Aleksei Platonov, Aleksandr Trukhanov and Igor Bessmertny	Semantic tomography: a word embedding method using quantum probability framework ( <b>the best paper candidate</b> )
Short presentations				
2	17:20	10m	Ivan Uskov, Alexander Yarkeev and Evgenij Tsopa	Numeric data extraction from natural language text
3	17:30	10m	Darya Panarina and Pavel Balakshin	Aspects of software development for studying the relationship between type of thinking and facial features
4	17:40	10m	Tuan Pham Ngoc, Alexander N. Timofeev, Aleksandr Vasilev and Valery V. Korotaev	COMPUTER MODELING OF AN IMITATION DIGITAL IMAGE FOR A MOTION REFERENCE MARK
5	17:50	10m	Daniil Sadyrin, Andrey Dergachev, Ivan Loginov, Iurii Korenkov and Aglaya Ilina	Application of graph databases for static code analysis of web-applications
6	18:00	10m	Vadim Kholoshnya and Elena Boldyreva	Universal system for finding the shortest way using a genetic algorithm and reinforcement learning
7	18:10	10m	Andrey Zavodov and Andrey Dergachev	Algorithmic approaches to analysis of internet contents effect on its target audience
8	18:20	10m	Konstantin Mazunin, Oleg Doronin and Andrey Dergachev	Google Thread Sanitizer deadlock detection algorithm improvements
Total:		1h30m		

# Software Engineering

Chairman – Liubov Lisitsyna, vice-chairman – Ivan Loginov

13.12.19, 10:00 – 11:30, room “Michelangelo”

N	Time	Duration	Authors	Title
Long presentations				
1	10:00	20m	Alexander Kshenin, Anna Semakova and Nadezhda Zvartau	Exploratory Analysis of Hypertensive Patient Data for Data-Driven Modelling of Personalized Treatment Dosing
2	10:20	20m	Svyatoslav Oreshin, Liubov Lisitsyna	Personalized impact on students in MOOCs (the best paper candidate)
3	10:40	20m	Alexander Nechaev, Nataly Zhukova and Vasily Meltsov	Personalized Recommendation Algorithm Selection Using Binary Vectors of Metadata
Short presentations				
4	11:00	10m	Anushervon Salimov and Michail Panteleyev	Analysis navigation algorithms for intelligent agent in virtual soccer
5	11:10	10m	Anna Bakanova and Aleksey Shikov	The method of employee competencies management based on the ontological approach
6	11:30	10m	Dmitry Mouromtsev, Ilya Gosudarev and Stanislav Sivinskiy	The issue of identification of participants in the educational process in the conditions of E-learning
Total:		1h30m		

13.12.19, 12:00 – 13:30, room “Michelangelo”

N	Time	Duration	Authors	Title
Long presentations				
1	12:00	20m	Aleksei Shchekochikhin and Gleb Rogozinsky	On Distributed Genetic Algorithm-Based Music Generation with VAE Genotype-to-Phenotype Mapping
2	12:20	20m	Borislav Novikov and Mikhail Panteleev	ANYTIME ALGORITHMS FOR PASS IMPLEMENTATION IN VIRTUAL SOCCER
3	12:40	20m	Elena Boldyreva	Trends prediction in the workshop design for science-intensive areas using machine learning technologies
Short presentations				
4	13:00	10m	Andrey Dergachev, Daniil Sadyrin, Aglaia Ilina, Ivan Loginov and Iurii Korenkov	Methods and Means of Searching Errors When Working With Dynamic Memory
5	13:10	10m	Kirill Uryvaev and Alena Rusak	Research of methods for improving the quality of prediction using artificial neural networks
6	13:20	10m	Artemii Zenkin, Ekaterina Kosareva and Ivan Kirilenko	Development of System For Detecting Parking Space Occupancy Using Deep Learning Algorithms
Total:		1h30m		

# Computer Systems and Networks

Chairman – Vladimir Bogatyrev, vice-chairman – Pavel Balakshin

12.12.19, 12:00 – 13:30, room “Plato”

N	Time	Duration	Authors	Title
Long presentations				
1	12:00	20m	Natalya Verzun, Mikhail Kolbanev and Daria Vorobeva	Access control model to global infocommunication resources
2	12:20	20m	Aleksandr Moshnikov	Process safety instrument system optimization by Monte-Carlo method
3	12:40	20m	Vladimir Bogatyrev and Aleksej Derkach	Evaluation of the cluster operating time with the migration of virtual machines while ensuring the continuity of the computing process
Short presentations				
4	13:00	10m	Tatiana Tatarnikova and Ekaterina Poymanova	Statistical research and modeling network traffic
5	13:10	10m	Vladimir Goydenko, Vladimir Goncharenko and Nina Zhuravleva	Method of diagnosis integrated systems and communication systems based on wavelet-transform thermogram of electronic modules
6	13:20	10m	Ilya Viksnin, Julia Lyakhovenko, Nikita Tursukov, Sergey Chuprov and Ekaterina Sozinoва	Empirical Study on Modeling of Crowd Behavior in Emergency Situations
Total:		1h30m		

12.12.19, 17:00 – 18:00, room “Plato”

N	Time	Duration	Authors	Title
Long presentations				
1	17:00	20m	Boris Sovetov and Tatiana Tatarnikova	Metrical characteristics detection of attacks of routing in wireless sensor networks
2	17:20	20m	Ilya Noskov and Vladimir Bogatyrev	Multipath redundant transmissions of critical to delays packets based on UDP protocol (the best paper candidate)
3	17:40	20m	Alexey Vanin, Vladimir Bogatyrev, Stanislav Bogatyrev, Fabian Wahle and Sergei Liubich	Data migration rate of the CRUSH-based distributed storage with dynamic topology
Total:		1h		

# Computer Systems and Networks

Chairman – Vladimir Bogatyrev, vice-chairman – Pavel Balakshin

13.12.19, 10:00 – 11:30, room “Plato”

N	Time	Duration	Authors	Title
Long presentations				
1	10:00	20m	Nikolay Manaev	Method of constructing a three-dimensional wireless coverage map ( <b>the best paper candidate</b> )
2	10:20	20m	Andrey Tabakov and Alexey Paznikov	Algorithms for Minimization of Thread Contention in Relaxed Priority Queues
3	10:40	20m	Alexey Paznikov and Evgeniy Goncharenko	Analysis of the impact of cache coherence protocol and data locality on the cost of atomic operations
4	11:00	20m	Tien Ban Doan and Andrey Aleksandrovich Tropchenko	Fast intra mode decision for HEVC
Short presentation				
5	11:20	10m	Elizaveta Kuzenkova, Iurii Korenkov, Ivan Loginov, Andrey Dergachev and Aglaya Ilina	The development of management systems for horizontal scaling of applications in a heterogeneous environment
Total:		1h30m		

13.12.19, 12:00 – 13:30, room “Plato”

N	Time	Duration	Authors	Title
Long presentations				
1	12:00	20m	Vladimir Bogatyrev, Stanislav Bogatyrev and Anatoly Bogatyrev	The probability of timely redundant service of requests by sequence of servers in multi-level cluster
2	12:20	20m	Rahul Johari, Harshit Bhatia ( <b>skype call</b> ) and Kalpana Gupta	E2CT: Energy Efficient Cipher Technique
3	12:40	20m	Sergey Chuprov, Egor Marinenkov and Ilya Viksnin	Trust, Reputation, and Game Theory Approach to Secure Communication in a Group of Unmanned Vehicles
4	13:00	20m	Mohammed Al-Ghaili, Igor Bessmertny and Valery Muzhikov	Research of Heart Rate Variability Based on Regression Neural Model
Short presentations				
5	13:20	10m	Dina Zimina and Dmitry Mouromtsev	Improving educational process management applying blockchain technology
Total:		1h30m		



# Cyber-Physical Systems

Chairman – Aleksei Platunov, vice-chairman – Vasiliy Pinkevich

12.12.19, 10:40 – 11:40, room “Plato”

N	Time	Duration	Authors	Title
Long presentations				
1	10:40	20m	Igor Lazarev and Ilya Gosudarev	Web application development problems using DBMS on microcontroller platforms.
2	11:00	20m	Ekaterina Kosareva, Artemii Zenkin and Ivan Kirilenko	Flight Motion Control System for UAV
Short presentations				
3	11:20	10m	Iuliia Zaitceva	Nonlinear oscillations prevention in unmanned aerial vehicle
4	11:30	10m	Arkady Kluchev, Alexey Platunov, Vladislav Zhovnitsky, Vladislav Kluchev and Yaroslav Gorbachev	Graphic programming language for cyber-physical systems serving housing and communal services
Total:		1h		

# Cyber-Physical Systems

Chairman – Aleksei Platunov, vice-chairman – Aleksandr Penskoi

13.12.19, 10:00 – 11:10, room “Aristotle”

N	Time	Duration	Authors	Title
Long presentations				
1	10:00	20m	Konstantin Kormilitsyn, Kustarev Pavel and Elizaveta Kormilitsyna	Simulation modeling of artificial neural networks ( <b>the best paper candidate</b> )
Short presentations				
2	10:20	10m	Bogdana Tishuk and Sergei Bykovskii	Adaptive L1 cache prefetching algorithm for RISC-V microprocessors
3	10:30	10m	Maria Usova, Sergey Chuprov, Ilya Viksnin and Oksana Baranova	Model of Secure Informational Messages for Confidentiality Assurance in Smart Factory Networks
4	10:40	10m	Andrey Tsaplin and Alexey Platunov	Solving the thermal problem in smart home systems on the LMT4Home platform
5	10:50	10m	Aleksandr Filippov and Sergei Filippov	TRAINING AND RESEARCH USING THE ROBOTIC PLATFORM OF THE ANTHROPOMORPHIC ROBOT GRETA 2.0
6	11:00	10m	Boris S. Padun and Kirill V. Kipriianov	Mathematical method for the synthesis of technological systems from analogue-element set
Total:		1h10m		

13.12.19, 12:00 – 13:30, room “Aristotle”

N	Time	Duration	Authors	Title
Long presentations				
1	12:00	20m	Tatyana Astakhova, Mikhail Kolbanev and Anna Romanova	Estimation of the sensor devices characteristics in three-dimensional space of agriculture ( <b>the best paper candidate</b> )
2	12:20	20m	Tatyana Astakhova, Mikhail Kolbanev and Alexey Shamin	Priority service model for mobile nodes of ubiquitous sensor network
3	12:40	20m	Vasily Meltsov, Alexey Lapitsky and Nikolay Mustafin	Effective Implementation of the Signals Receiver MODE-S Format on the FPGA
Short presentations				
4	13:00	10m	Igor Baranov, Ekaterina Tambulova, Alexey Platunov, Arkady Kluchev, Daria Pluzhnikova, Vasily Krylov and Vladislav Zhovnitsky	Automated training laboratory bench for studies of thermophysical properties and thermal processes based on a programmable controller SDK-1.1M
5	13:10	10m	Pavel Rozhkin, Kirill Markin and Alexey Platunov	Development of a hardware-software system for a bionic prosthesis of a human hand
6	13:20	10m	Darya Kirilova, Tatyana Astakhova and Mikhail Kolbanev	Research on the physical characteristics of sensor devices in the digital farms
Total:		1h30m		

# AR/VR/MR and Multimedia

Chairman – Artem Smolin, vice-chairman – Aleksei Lavrov

12.12.19, 10:40 – 11:40, room “Aristotle”

N	Time	Duration	Authors	Title
Long presentations				
1	10:40	20m	Alexander Mezhenin, Vera Izvozchikova, Vladimir Shardakov, Veronika Zaporozhko and Vladimir Borisov	Development of software and hardware complex for fire detection of gas and oil wells
2	11:00	20m	Valery Sizikov, Aleksandra Dovgan and Aleksei Lavrov	Suppressing the Gibbs effect on reconstructed images
Short presentations				
3	11:20	10m	Trong The Quan	An Improved MVDR Filter Using Speech Presence Probability
4	11:30	10m	Nikolay Nemcev and Elena Vasilenko	Approach for vehicle model re-identification via deep visual features matching
Total:		1h		

12.12.19, 12:00 – 13:30, room “Aristotle”

N	Time	Duration	Authors	Title
Long presentations				
1	12:00	20m	Maxim Sorokin, Dmitriy Zhdanov and Andrey Zhdanov	Segmentation of illuminated light areas using fully convolutional neural networks and computer vision algorithms for augmented reality systems
2	12:20	20m	Anastasia Mandrik, Larisa Sopronenko, Nina Rushchenko and Aleksei Lavrov	The Influence of Digital Colors Perception at Human Computer Interaction
3	12:40	20m	Patryk Bąkowski and Dmitry Muromtsev	On Voice Authentication Algorithm Development ( <b>the best paper candidate</b> )
Short presentations				
4	13:00	10m	Natalya Averbukh, Ilya Starodubtsev, Pavel Kondratov, Maria Kourova, Natalya Lozinskaya, Matvey Pavlov, Konstantin Zorkov and Diana Galimova	Environments for psychological research of human state and behavior in virtual reality
5	13:10	10m	Aleksei Lavrov and Yuliya Konstantinova	Experimental Evaluation of Different Camera Layouts in Marker Motion Capture System
6	13:20	10m	Vera Izvozchikova, Aleksandr Mezhenin, Dmitry Burlov and Vladimir Shardakov	The Synthesis of Virtual Environment
Total:		1h30m		

# AR/VR/MR and Multimedia

Chairman – Artem Smolin, vice-chairman – Aleksei Lavrov

12.12.19, 17:00 – 18:10, room “Aristotle”

N	Time	Duration	Authors	Title
Long presentations				
1	17:00	20m	Alexandr Nikitin, Alexej Kuzhel, Ivan Sitnikov and Olesya Karelova	VR Training for Railway Wagons Maintenance
2	17:20	20m	Artem Smolin, Konstantin Malyshev, Anna Spiridonova, Andrey Mironov and Yuliya Konstantinova	The use of a smell sensor channel in virtual reality environments
3	17:40	20m	Leonid Borodkin, Stepan Lemak, Victor Chertopolokhov, Maxim Mironenko, Sergey Chernov, Anna Kruchinina and Margarita Belousova	Virtual Reality in Lomonosov Moscow State University Interdisciplinary Research Illustrated by Moscow Bely Gorod Area Historical Reconstruction Example ( <b>the best paper candidate</b> )
Short presentations				
4	18:00	10m	Yulia Shutova, Artem Smolin, Pavel Vorobev, Anastasia Mandrik, Anastasia Rychkova and Lidia Korpan	Development of a custom teleportation system for virtual imp-art museum
Total:		1h10m		

# Demo session

12.12.19, 15:50 – 17:00, Grand Lobby

No.	Authors	Title
1	Umarov Mirabbosbek Abdimutalib ugli	A system for paying for parking lots and toll roads using a mobile service and video surveillance systems
2	Aleksei Goncharov, Igor Nikitin, Yunir Salimzianov	Robotic multisensor 3D-vision system
3	Aleksandr Bulantsov, Evgenii Savvin, Artem Oshchepkov	Wheel robot based on Raspberry Pi microcomputer
4	Danila Nikiforovskii	The FPGA-based implementation of the Real-Time Video Stream Line Detection system using the Hough transform
5	Alina Arzhanenkova	HDL code obfuscation

# Poster session

13.12.19, 16:00 – 17:00, Grand Lobby

No.	Authors	Title
1	Marina Avdeeva, Anastacia Uvarova and Sergei Shavurov	Application of the simulation method to assess the frequency of implementation of accident scenarios
2	Aleksey Mironov, Anna Mironova and Vyacheslav Burlov	Information Security of Production on the Affairs about Administrative Offenses under the Management of Geoinformation System
3	Anatoly Zykov, Aleksandr Mezhenin and Vladimir Polyakov	Creation and visualization of graph-analytical models in tasks analysis of calculating process
4	Alexey Silaev, Denis Nevmerzhitsky and Maria Marusina	Method of converting an induction motor to a permanent magnet synchronous motor (LS-PMSM) with linear starting using FEA for mechatronic systems
5	Alexandr Khvostov	Suspended Robot with Motion Control System
6	Viktoriia Korzhuk and Aleksey Bartov	The Event Model of Network Traffic for Security Analysis of Internet of Things
7	Daniil Kivarin and Mikhail Panteleyev	MODELS AND ALGORITHMS FOR ACTION UTILITY ASSESSMENT IN VIRTUAL FOOTBALL
8	Ilya Martynchuk and Sergei Zhmylev	Caler. A cross-platform utility for cloud backend systems autoscaling optimization ( <b>the best poster candidate</b> )
9	Tatiana Shamsutdinova	MANAGEMENT OF FORMATION OF PROFESSIONAL COMPETENCIES IN ADAPTIVE ELECTRONIC EDUCATIONAL SYSTEMS
10	Vladimir Ivanovich Skorubskiy and Andrey Alexandrovich Tropchenko	Algorithmization of Binary-decimal Arithmetic Operations in Economic Calculations
11	Oleg Laktyushkin, Vladimir Ryashentsev and Ilya Gosudarev	Improving web applications throughput in the PHP ecosystem
12	Ekaterina Eliseeva, Ilya Gosudarev and Ilkhom Khafizov	Comparison of web frameworks on Python and Node.js platforms
13	Evgenii Milenin and Nikolay Nemcev	Aggregate distributed data using quality of web service data analysis components
14	Andrei Volkov and Lev Ospennikov	The architecture of the distributed manufacturing using hybrid cloud computing
15	Galina Markina, Mikhail Shley, Olga Kuznetsova and Tatiana Markina	Assessment of the characteristics of participants and profiles of managers when applying for competitive selection
16	Alexandra Denisova and Anton Gavrilov	Using Mobile Vision API for reading measurement information from metering devices
17	Alexey Zhukov and Alexander Belozubov	RESULTS OF IMPLEMENTATION SYSTEM MANAGEMENT AND DRAWING FOR PERSONS WITH SPECIAL HEALTH NEEDS
18	Aleksei Mikhailov, Sergey Tretyakov and Yuriy Andreev	Digital Production Models Development Using the IIoT Platform
19	Dmitrii Medvedev, Dmitrii Mouromtsev and Vladislav Shmatkov	Based on public knowledge graph Question-Answering System for Russian language
20	Alexandra Kryukova and Cyril Pshenichny	Semantic database vulnerability analysis
21	Natalia Sosipatrova and Andrei Bilyi	Methods for determining the preferred type of behavior through a web application with dynamic script

22	Dmitry Anisimov, Elena Avksentieva and Valeriya Shulmina	Development of educational platform using Robotic automation process
23	Alexander Sergeev and Andrey Bilyi	EEG emotion recognition and its problems
24	Andrey Zvonarev and Andrey Bilyi	Analysing text tonality: comparative study of classic ML techniques
25	Vera Izvozchikova, Aleksandr Mezhenin, Dmitry Burlov and Vladimir Shardakov	The Synthesis of Virtual Environment
26	Aleksei Denisov, Maksim Sorokin and Sergei Bykovskii	Unsupervised deep learning with iterative warping for motion estimation
27	Andrew Lemeshev	Regular grid based lighting restoration method in mixed reality systems
28	Andrey Shmorgunov and Nina Rushchenko	Research and analysis of the level of audience involvement when watching movies based on experimental data
29	Aleksei Lavrov and Yuliya Konstantinova	Experimental Evaluation of Different Camera Layouts in Marker Motion Capture System
30	Natalya Averbukh, Ilya Starodubtsev, Pavel Kondratov, Maria Kourova, Natalya Lozinskaya, Matvey Pavlov, Konstantin Zorkov and Diana Galimova	Environments for psychological research of human state and behavior in virtual reality