



South-Eastern Finland
University of Applied Sciences



UNIVERSITY OF AMSTERDAM



ITMO UNIVERSITY

**6th International Young Scientists Conference in
High Performance Computing and Simulation 2017
(YSC 2017)**

01 – 03 November, 2017

Kotka, Finland

Wednesday, November 01

09:00 – 09:30	Registration
09:30 – 10:00	Welcome Address: Mr. Henry Lindelöf, Mayor, City of Kotka, Finland, Dr. Jari Kortelainen, principal lecturer at Xamk, Finland Prof. Dr. Alexander Boukhanovsky, ITMO University, Russia
10:00 – 10:40	Keynote lecture: When data becoming big: computational issues of big data processing and analysis Prof. Dr. Alexander Boukhanovsky Director of School of Translational IT ITMO University
10:40 – 11:00	Coffee Break
11:00 – 12:45	Young Scientists Presentations. eScience Session Chair: Jari Kortelainen, Xamk
11:00 – 11:15	Sergey Smirnov: Implementation of Concurrent Parallelization of Branch-and-bound algorithm in Everest Distributed Environment
11:15 – 11:30	Maria Rachinskaya: Multidimensional Global Optimization Method Using Numerically Calculated Derivatives
11:30 – 11:45	Oleg Zaikin: A parallel SAT solving algorithm based on improved handling of conflict clauses
11:45 – 12:00	Sergey Volkov: Simplifying the Use of Clouds for Scientific Computing with Everest
12:00 – 12:15	Tero Keski-Valkama: A Simulator for Event-oriented Data in Flexible Assembly System Fault Prediction
12:15 – 12:30	Mika Letonsaari: Modeling computational algorithms using nonlinear storytelling methods of computer game
12:30 – 12:45	Oksana Severiukhina: Adaptive load balancing of distributed multi-agent simulations on heterogeneous computational infrastructures
12:45 – 14:00	Lunch
14:00 – 15:00	Young Scientists Presentations. eKnowledge Session Chair: Alexander Moiseev, ITMO University
14:00 – 14:15	Maxim Rovbo: Simulating robot groups with elements of a social structure using Kvorum
14:15 – 14:30	Stepan Kochemazov: Bridging Network Static Properties and Activation Dynamics
14:30 – 14:45	Alexey Serenko: On the effect of stabilizing mean firing rate of a neuron due to STDP
14:45 – 15:00	Dmitry Nekhaev: Visualization of Maximizing Images with Deconvolutional Optimization Method for Neurons in Deep Neural Networks
15:00 – 15:40	Keynote lecture: Toolkit platform for intensive work with metadata in specialized information systems on example of Digital Registrar of the Dionisius frescoes in the Cathedral

	of the Nativity of the Virgin at the Ferapontov Monastery painted in 1502 Prof. Dr. Viacheslav Ilyin, National Research Center Kurchatov Institute
15:40 – 16:00	Coffee Break
16:00 – 17:30	Young Scientists Presentations. eEnvironments Session Chair: Anna Bilyatdinova, ITMO University
16:00 – 16:15	Nikolay Nikitin: Urban Pluvial Flood Forecasting using Open Data with Machine Learning Techniques
16:15 – 16:30	Alexander Moiseev: Floodvision: A Tool for Fast and Comfortable Scenario-Based Visual Analysis of a Large Climate Datasets
16:30 – 16:45	Grigory Trifonov: VIIRS Nightfire Remote Sensing Volcanoes
16:45 – 17:00	Jose Luis Araya-Lopez: Quality control and data restoration of metocean Arctic data
17:00 – 17:15	Anton Gusarov: Spatially adaptive ensemble optimal interpolation of in-situ observations into numerical vector field models
17:15 – 17:30	Gali-Ketema Mbogo: High-performance meteorological data processing framework for real-time analysis and visualization
17:30 – 18:00	Presentation of Xamk Information technology studies and research
18:00 – 19:00	Development Director Terhi Lindholm: A short presentation of the City of Kotka Welcome drinks

Thursday, November 02

09:30 – 10:30	Young Scientists Presentations. eHealth Session Chair: Jussi Kasurinen, Xamk
09:30 – 09:45	Kseniia Bureiko: Multiscale dynamic visualization of signal transduction processes with detailing of target-genes activation in three-dimensional genome structure
09:45 – 10:00	Bogdan Iaparov: Mathematical modeling shows the frequency of Ca ²⁺ sparks in cells depends on the ryanodine receptor's arrangement
10:00 – 10:15	Oleg Metsker: Pattern-based Mining in Electronic Health Records for Complex Clinical Process Analysis
10:15 – 10:30	Iliia Kisliakovskii: Towards a Simulation Framework for Decision Support in Healthcare Quality
10:30 – 10:50	Coffee Break
10:50 – 11:50	Young Scientists Presentations. eHealth Session Chair: Alexandra Klimova, ITMO University
10:50 – 11:05	Svetlana Nosova: Parallel 2D Ray Casting Algorithm for Brain Cell Registration with Brodmann's Layer Decomposition from Nissl-stained Mouse Cortex Images
11:05 – 11:20	Nikita Seleznev: Absolute humidity anomalies and the influenza onsets in Russia: a computational study
11:20 – 11:35	Anastasia Funkner: Towards Evolutionary Discovery of Typical Clinical Pathways in Electronic Health Records
11:35 – 11:50	Timofey Epanchintsev: Simulation of Overdrive Pacing in 2D Phenomenological Models of Anisotropic Myocardium
12:00 – 12:50	Keynote lecture Algorithms and data analysis: discrete and continuous techniques for paleontology Prof. Dr. Heikki Mannila, President of the Academy of Finland
12:50 – 14:00	Lunch
14:00 – 15:30	Young Scientists Presentations . eSociety Session Chair: Klavdiya Bochenina, ITMO University
14:00 – 14:15	Dmitry Donchenko: Analysis of Comments of Users of Social Networks to Assess the Level of Social Tension
14:15 – 14:30	Max Petrov: Modelling multistage information spreading in dynamic complex networks
14:30 – 14:45	Nikita Beizerov: Chaos Theory in Finance
14:45 – 15:00	Jussi Kasurinen: Usability Issues of Virtual Reality Learning Simulator in Healthcare

15:00 – 15:15	and Cybersecurity Vesa Kankare: Simternet - Complex Internet Exercise on a Virtual ICT Learning Environment
15:15 – 15:30	Alexandra Klimova: Revisiting Master's Program Design in Computational Science: Case of ITMO University
15:30 – 15:50	Coffee Break
15:50 – 16:30	Keynote lecture Pitfalls in Modeling and Simulation Dr. Matti Koivisto, Head of School of Technology, Xamk
16:30 – 17:10	Keynote lecture Computational aspects of High Performance Simulation of processes on complex networks Dr. Klavdiya Bochenina, Associate Professor, ITMO University
17:10 – 18:00	Tour in the museums of Maritime Center Villamo

Friday, November 03

09:30 – 10:50	Keynote lecture Logic in Private and Public System-of-Systems Dr. Jari Kortelainen, Principal lecturer, Xamk Prof. Dr. Patrik Eklund, Professor in Computer Science, Umea University
10:50 – 11:35	Young Scientists Presentations. eCity Session Chair: Anton Gusarov, ITMO University
10:50 – 11:05	Alexander Moiseev: GPU-powered Calculation of Navigation Fields for Agent-based Simulation
11:05 – 11:20	Timur Fatkulin: Accident monitoring framework based on online social network sensing
11:20 – 11:35	Lyudmila Vidasova: Smart Cities Prospects from the Results of the World Practice Expert Benchmarking
11:35 – 12:00	Coffee Break
12:00 – 12:40	Keynote lecture The increasing complexity of humanity through technology, self-organization, and natural selection Dr. Carlos Gershenson, Full Time Research Professor, UNAM
12:40 – 13:10	Closing ceremony Vice President and Vice Rector Mirja Toikka: Closing Speech