Program of

The 20th Conference of Open Innovations Association FRUCT and ISPIT 2017 conference

Saint-Petersburg, Russia 3-7 April 2017



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GAUDEAMUS IGITUR, JUVENES DUM SUMUS! Post Jucundam Juventutem, Post Molestam Senectutem Nos Habebit Humus.

> UBI SUNT, QUI ANTE NOS IN MUNDO FUERE? VADITE AD SUPEROS, TRANSITE AD INFEROS, UBI JAM FUERE.

> VITA NOSTRA BREVIS EST, BREVI FINIETUR, VENIT MORS VELOCITER, RAPIT NOS ATROCITER, NEMINI PARCETUR.

VIVAT ACADEMIA, VIVANT PROFESSORES! VIVAT MEMBRUM QUODLIBET, VIVANT MEMBRA QUAELIBET! SEMPER SINT IN FLORE!

VIVANT OMNES VIRGINES Faciles, formosae! Vivant et mulieres, Tenerae, amabiles, Bonae, laboriosae!

VIVAT ET RESPUBLICA, ET QUI ILLAM REGIT! VIVAT NOSTRA CIVITAS, MAECENATUM CARITAS, QUAE NOS HIC PROTEGIT

PEREAT TRISTITIA, PEREANT DOLORES, PEREAT DIABOLUS, QUIVIS ANTIBURSCHIUS, ATQUE IRRISORES!





Practical Information



Also we recommend using Tourist Assistant – TAIS app - a mobile tourist guide for Android devices. Based on your current location, events and recommendations of other tourists, the app provides the list of attractions around. You can see your location on the map, browse information about attractions located within walking distance, check photos, get weather updates, create route to the selected attractions and a lot more. The app aggregates information from all major sources, e.g., Wikipedia, Wikivoyage, Wikitravel, Google Place, etc.





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Andrei Ovchinnikov (State University of Aerospace Instrumentation, Russia) Jarkko Paavola (Turku University of Applied Sciences, Finland) Ilya Paramonov (Yaroslavl State University, Russia) Dmitry Petrov (Magister Solutions Ltd, Finland) Vitaly Petrov (Tampere University of Technology, Finland) Lidia Pivovarova (University of Helsinki, Finland) Jari Porras (Entrepreneur, Finland) Veronika Prohorova (State University of Aerospace Instrumentation, Russia) Alexander Pyattaev (Tampere University of Technology, Finland) Alexey Rabin (State University of Aerospace Instrumentation, Russia) Joel J.P.C. Rodrigues (Instituto de Telecomunicações, University of Beira Interior, Portugal) Boris Ryabko (Siberian State University of Telecommunications and Information Sciences, Russia) Roberto Saracco (Telecom Italia, Italy) Alexander Sayenko (Samsung, South Korea) Alexander Semenov (University of Jyväskylä, Finland) Anton Shabaev (Petrozavodsk State University, Russia) Yuriy Sheynin (State University of Aerospace Instrumentation, Russia) Nikolay Shilov (SPIIRAS, Russia) Charalabos Skianis (University of the Aegean, Greece) Alexander Smirnov (ITMO University, Russia) Gennady Smorodin (Dell EMC, Russia) Elena Suvorova (State University of Aerospace Instrumentation, Russia) Andrey Terekhov (Saint-Petersburg State University, Russia) Olav Tirkkonen (Aalto University, Finland) Tony Torp (Tampere University of Applied Sciences, Finland) Timofey Turenko (MariaDB Corporation Ab, Finland) Andrey Turlikov (State University of Aerospace Instrumentation, Russia) Yu Weider (San Jose State University, USA) Evgeny Yablokov (State University of Aerospace Instrumentation, Russia) Mark Zaslavskiy (FRUCT / ITMO University, Russia) Liang Zhou (Technical University of Munich, Germany)

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The program of the 20th FRUCT & ISPIT conferences April 3-7, 2017, Saint-Petersburg, Russia

April 3, 5-7: Saint Petersburg State Electrotechnical University "LETI" campus, Building 5, ul. Prof. Popova, 5 April 4: Dell EMC Research Center, Sredny prospekt 36, 5th floor April 6-7: Technopark of National Research University ITMO, Birzhevaya liniya 14, Room 103 and 305/1

DATE	TIME	PROG	RAM	
DAIL	09:00-18:00	Internal meetings of F		
3.4.17	14:00-17:00	MariaDB meeting (<i>by invitations</i>), Publi		
4.4.17	09:00-18:00	Dell EMC University Open Day, Dell EM	IC research center, Sredny prospekt 36	
	09:30-11:00	FRUCT Smart Spaces & IoT WG, Public	Relations department meeting room	
	11:00-12:00	Conference Regis	tration & Coffee	
	12:00-14:00	Opening of the 20th FRUCT conference , Public Relations department auditorium		
5.4.17	14:00-14:20	Coffee		
	14:20-16:00	e-Healthcare Solutions I, Public R	elations department auditorium	
	16:00-16:20	Coffee	break	
	16:20-18:00	Software Design I, room ?	Robotic systems, room ?	
	09:30-10:00	Conference I	Registration	
	10:00-12:00	e-Healthcare Solutions II, room?	Emerging Topics I, room?	
	12:00-12:20	Coffee	break	
	12:20-14:20	e-Healthcare Solutions III, room ?	Emerging Topics II, room?	
6.4.17	14:20-15:30	Lunch	break	
011127	15:30-17:30	Network Technologies, room ?		
	17:30-17:50	Demo pitches in Pecha	Kucha format, room ?	
	17:50-18:00	Preparation to Dem	no Session, room ?	
	18:00-21:00	Demo Session and Social Event, The Main auditorium of Building 5		
	09:30-10:00	Conference I	Registration	
	10:00-11:40	Software Design II, room ?	Image and Video processing, room ?	
	11:40-12:00	Coffee break		
	12:00-13:20	Knowledge and Data Management I, room ?	Solutions for Tourists and Drivers, room ?	
	13:20-14:40	Lunch break		
7.4.17	14:40-16:00	Knowledge and Data Management II, room ?	Embedded Systems and Networks, room ?	
	16:00-16:20	Coffee		
	16:20-17:20	Smart Spaces and Internet of Things, room ?	Advanced Text Processing Solutions, room ?	
	17:20-17:30	Official closing of the 20 th F		



The program of the 20th FRUCT & ISPIT conferences April 3-7, 2017, Saint-Petersburg, Russia

April 5 (Wednesday)

Saint Petersburg State Electrotechnical University "LETI" campus, Building 5, ul. Prof. Popova, 5

	Saint Petersburg State Electrotechnical University "LETI" campus, Building 5, ul. Prof. Popova, 5		
09:30	1.5h	FRUCT Smart Spaces & IoT WG meeting, Public Relations department meeting room	
11:00	1h	20 th FRUCT Conference Registration & Coffee	
Sessio	n: Offi	cial opening of the 20 th FRUCT conference	
Room:			Chairman: Sergey Balandin
	20m	Official opening of the 20 th FRUCT conference	
12:20	20m	Reserved for LETI and IEEE North-West Russia	
12:40	20m	Technologies, Russia	Academic Partnerships, Gennady Smorodin, Dell
13:00	1h	Keynote talk: Role of m-Health in personalized Russia	d medicine, Oleg Medvedev, Moscow State University,
14:00	20m	C	offee break
Sessio	n: e-He	ealthcare Solutions I	
Room:			Chairman: Oleg Medvedev
	20	Intelligent System for Blood Pressure Monitori	ng, by Aleksei Anisimov, Alyona Skorobogatova and
14:20	20m	Anastasiya Sutyagina, Saint-Petersburg Electro	
		On the Semantic Approach to Service Develop	ment for Socio-Cyber-Medicine Systems, by Dmitry
14:40	20m	Korzun, Alexander Meigal, Alexander Borodin	and Yulia Zavyalova, Petrozavodsk State University,
		Russia	
		Isometric-based Method for Hardware Automa	ated Diagnostic of Functional Status of Central Nervous
14:50	20m	System, by Nikolay Safiannikov, Olga Bureneva	a Saint-Petersburg Electrotechnical University "LETI",
		and Zoya Aleksanyan, RAS Institute of the Hum	nan Brain, Russia
		-	uture of Internet of Health, by Olga Kolesnichenko,
			Dell EMC External Research and Academic Alliances,
15:20	20m	•	lis, Vladivostok State University of Economics and
			ARM, Yuriy Kolesnichenko, Cybersecurity Technology,
		Russia, and Sergey Balandin, FRUCT, Finland	
		-	Monitoring System, by Aleksandr Kalinichenko, Svetlana
15:40	20m		niversity "LETI", and Alexey Uskov, Medical project
		CardioQVARK, Russia	
16:00			offee break
		ware Design I	Session: Robotic systems
Room:		Chairman: Kirill Chuvilin	Room: Chairman: Timofey Turenko
16.20	20.0	Source Code Quality Classification Based On	Modern Multi Robot SLAM approaches taxonomy, by
16:20	20m	Software Metrics, by Petr Vytovtov and Evgeny Markov, Kalashnikov ISTU, Russia	Kirill Krinkin, Artyom Filatov and Anton Filatov, Saint- Petersburg Electrotechnical University "LETI", Russia
		Development of software for finding cutting and creasing lines on a corrugated cardboard	Software Platform for Development of Multimodule Robotic Systems with Asynchronous Multithreaded
	20m	web, by Anton Shabaev, Mikhail Probichev,	Control, by Arseniy Ivin and Daniil Mikhalchenko,
16:40		Sergey Semanov, Petrozavodsk State	SPIIRAS, Russia
		University, and Ivan Raspopov, "Karton	
		Optima" LLC, Russia	
		Method and Tools for Automated End-to-	Smartphone-Based Adaptive Remote Control Interface
		end Testing of Applications for Sailfish OS, by	for Six-Wheeled Mobile Robot, by Mikhail Mironov,
17:00	20m	Ilya Paramonov, Andrey Vasilyev and Sergey	SPIIRAS, and Alexey Kashevnik, ITMO University,
		Averkiev, Yaroslavl State University, Russia	Russia







17:20	20m	Voice Assistant for Sailfish OS, by Petr Vytovtov, Kalashnikov ISTU, Russia	TRIK Studio: Technical Introduction, by Dmitry Mordvinov, Yurii Litvinov and Timofey Bryksin, St Petersburg State University, Russia
17:40	20m	An Application of Microservices Architecture Pattern to Create a Modular Computer Numerical Control System, by Maxim Ya. Afanasev, Yuri V. Fedosov, Anastasiya A. Krylova and Sergey A. Shorokhov, ITMO University, Russia	Ontology-Based Indirect Interaction of Users and Mobile Robots for Joint Activities, by Mikhail Petrov, ITMO University, and Alexey Kashevnik, SPIIRAS, Russia
18:00		Closing of Day 3	

April 6 (Thursday)

Saint Petersburg State Electrotechnical University "LETI" campus, Building 5, ul. Prof. Popova, 5

09:30	30m	Conference registration	
Session: e-Healthcare Solutions II		ealthcare Solutions II	Session: Emerging Topics I
Room: Chairman: Olga Kolesnichenko		Chairman: Olga Kolesnichenko	Room: Chairman: Alexey Kashevnik
10:00	20m	The Method for Increasing of EEG Signal Sample Entropy Stability and its Application for Human State Monitoring, Yuliya Zhivolupova and Oleg Tcvetkov, Saint-Petersburg Electrotechnical University "LETI", Russia	Electrical Complex of Combined Power Supply on the Base of Renewables and Hybrid Correction Device, by Boris Abramovich, Yuriy Sychev, Saint- Petersburg Mining University, and Veronika Prokhorova, SUAI, Russia
10:20	20m	Study of Parameters and Properties of Approximate Entropy of EEG at Various Anesthesia Stages, by Anastasya Miganko, Saint- Petersburg Electrotechnical University "LETI", Russia	Problems of Trajectory Building During Laser CNC Processing, by Maxim Ya. Afanasev, Yuri V. Fedosov, Anastasiya A. Krylova and Sergey A. Shorokhov, ITMO University, and Sergey V. Akimov, The Bonch-Bruevich Saint-Petersburg State University of Telecommunications, Russia
10:40	20m	Improving the Design of Arterial Blood Pressure Monitor, Alyona Skorobogatova, Anastasiya Sutyagina and Aleksei Anisimov, Saint-Petersburg Electrotechnical University "LETI", Russia	Synthesis of Neurocontroller for Multirotor Unmanned Aerial Vehicle Based on Neuroemulator, by Sergey Andropov, Mikhail Budko, Marina Budko and Alexei Guirik, ITMO University, Russia
11:00	20m	Navigation Infrastructure for People with Disability, by Kirill Kulakov, Yulia Zavyalova and Irina Shabalina, Petrozavodsk State University, Russia	Air Navigation: Optimisation Control of Means Cueing of the Air-Traffic Control System, by Igor Grishin and Rena Timirgaleeva, Kuban State Technological University, Russia
11:20	20m	The Improvement of mHealth Technologies Using AFE-based Integrated Devices, by Yulia Bobrova, Saint-Petersburg Electrotechnical University "LETI", Russia	Generating Trading System Rules Using a Genetic Algorithm Based on Analyzing Historical Data, by Dmitry Iskrich and Dmitry Grigoriev, Saint- Petersburg State University, Russia
11:40	20m	Demonstration of a Signal Enhanced Fast Raman Sensor for Human Breath Analysis, by Sebastian Schlüter, Thomas Seeger, University of Siegen, Germany, and Gennadij Lukyanov, ITMO University, Russia	Investigation of the Characteristics of the Radiation of the Microstrip Antenna Based on the Fractal Approach, by Dmitriy Babichev and Viktor Tupik, Saint-Petersburg Electrotechnical University "LETI", Russia
12:00	12:00 20m Coffee		e break
Sessio	n: e-He	ealthcare Solutions III	Session: Emerging Topics II
Room	:	Chairman: Kirill Kulakov	Room: Chairman: Nikolay Shilov
12:20	20m	Automated Image Analysis in Multispectral System for Cervical Cancer Diagnostic, Alexandr	Sensor for determining the composition of fluid, by Gennadij Lukyanov, Ilya Kovalskiy, ITMO

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13:2020mDaniil Tomashevich and Yulia Bobrova, Saint- Petersburg Electrotechnical University "LETI", Russiaon input data stream, by Ivan Perl, Alexey Mulyukin and Tatyana Kossovich, ITMO University, Russia13:4020mStudies of the Human Breathing, by Gennadij Lukyanov, ITMO University, Anna Rassadina, Modern Medical Technology Medical Holding, Russia, and Aleksej Malyshev, University of Siegen, GermanyInfluence of Different Feature Selection Approaches on the Performance of Emotion Recognition Methods Based on SVM, by Daniil Belkov, Konstantin Purtov and Vladimir Kublanov, Ural Federal University, Russia				
12:4020mthe Problem of Recognition of Biomedical Signals, by Karina Khachatryan, Lyudmila Manilo and Aleksei Anisimov, Saint-Petersburg Electrotechnical University "LET", RussiaKristina Elanskaia and Dmitry Chigirev, Saint- Petersburg Electrotechnical University "LET", Russia13:0020mRemote Monitoring System for Patients with Musculoskeletal Diseases, by Anna Tatarnikova and Dmitry Pupynin, SUA, RussiaHeat Flux Sensor Based on Ferroelectric, by Ilya Kovalskiy, Gennadij Lukyanov, Sergei Makarov, ITMO University of Siegen, Germany13:0020mProsthesis Control System of the Upper Limb, by Danil Tomashevich and Yulia Bobrova, Saint- Petersburg Electrotechnical University "LET", RussiaContinuous execution of system of the Alexey Mulyukin and Tatyana Kossovich, ITMO University, Russia13:4020mProsthesis Control System of the Upper Limb, by Danil Tomashevich and Yulia Bobrova, Saint- RussiaContinuous execution of system dynamics models on input data stream, by Ivan Perl, Alexey Mulyukin and Tatyana Kossovich, ITMO University, Russia13:4020mKudies of the Human Breathing, by Gennadij Lukyanov, ITMO University, Anna Rassadina, Modern Medical Technology Medical Holding, Signals, by Andrey Stepanov, The Bonch-Bruevita Saint-Petersburg State University of Signals, by Andrey Stepanov, The Bonch-Bruevita Saint-Petersburg State University of Sofia, Bulgaria14:201.10hLunch break20mCommunications Network for Remote Monitoring of Wind Turbine based on Infrared Camera, by Shahid Hussain and Young-Chon Kim, Chonbuk National University, South Korea15:3020mCommunication Network for Remote Monitoring of Signa, Bulgaria <t< th=""><th></th><th></th><th>Electrotechnical University "LETI", Russia, and Uk Kang, Soo-Jin Bae and Dae-Sic Lee, Korean Electrotechnology Research Institute, South</th><th>Petersburg Electrotechnical University "LETI",</th></t<>			Electrotechnical University "LETI", Russia, and Uk Kang, Soo-Jin Bae and Dae-Sic Lee, Korean Electrotechnology Research Institute, South	Petersburg Electrotechnical University "LETI",
13:00 20m Musculoskeletal Diseases, by Anna Tatarnikova and Dmitriy Pupynin, SUAI, Russia Kovalskiy, Gennadij Lukyanov, Sergei Makarov, ITMO University, Russia, and Seeger Th, University of Siegen, Germany 13:20 20m Prosthesis Control System of the Upper Limb, by Daniil Tomashevich and Yulia Bobrova, Saint- Petersburg Electrotechnical University "LET", Russia Continuous execution of System dynamics models on input data stream, by Ivan Perl, Alexey Mulyukin and Tatyana Kossovich, ITMO University, Russia 13:40 20m Studies of the Human Breathing, by Gennadij Lukyanov, ITMO University, Anna Rassadina, Russia, and Aleksej Malyshev, University of Signals, by Andrey Stepanov, The Bonch-Bruevich Saint-Petersburg State University of Telecommunications, Russia Mobile Device Security, Management of Personal and Business Privacy, by Ekaterina Pshehotskaya and Oleg Mikhalsky, Polytechnic University, Russia 14:00 20m Communication Network for Remote Monitoring of Wind Turbine based on Infrared Camera, by Shahid Hussain and Young-Chon Kim, Chonbuk National University, South Korea 15:30 20m Communication Network for Remote Monitoring of Sing, Bulgaria 16:10 20m Mobile Edge Computing Services for Dynamic Quality of Service Control, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria 16:30 20m Mobile Edge Computing Applications for Connectivity Management, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria 16:31	12:40	20m	the Problem of Recognition of Biomedical Signals, by Karina Khachatryan, Lyudmila Manilo and Aleksei Anisimov, Saint-Petersburg	Kristina Elanskaia and Dmitriy Chigirev, Saint- Petersburg Electrotechnical University "LETI",
13:20 13:20 20mDaniil Tomashevich and Yulia Bobrova, Saint- Petersburg Electrotechnical University "LET", Mulyukin and Tatyana Kossovich, ITMO University, Russiaon input data stream, by Ivan Perl, Alexey Mulyukin and Tatyana Kossovich, ITMO University, Russia13:40ZomStudies of the Human Breathing, by Gennadij Lukyanov, ITMO University, Anna Rassadina, Russia, and Aleksej Malyshev, University of Siegen, Germany Ural Pederal University, RussiaInfluence of Different Feature Selection Approaches on the Performance of Emotion Recognition Methods Based on SVM, by Daniil Belkov, Konstantin Purtov and Vladimir Kublanov, Ural Pederal University, Russia14:00ZomSignals, by Andrey Stepanov, The Bonch-Bruevich Saint-Petersburg State University of Saint-Petersburg State University of Saint-Petersburg State University of Shahid Hussain and Young-Chon Kim, Chonbuk National University, South Korea15:30ZomCommunication Network for Remote Monitoring of Wind Turbine based on Infrared Camera, by Shahid Hussain and Young-Chon Kim, Chonbuk National University, South Korea15:50ZomMobile Edge Computing Services for Dynamic Quality of Service Control, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria On Telecommunication Software Engineering Education, by Manfred Sneps-Sneppe, Ventspils University, College, Latvia, Dmitry Namiot and Vladimir Sukhomlin, Lomonosov Moscow State University Russia16:30ZomSpectral Efficient of Dynamic Coll University "LETI", Russia17:10ZomSpectral Efficient format Mobile Edge Computing Applications for Connectivity Management, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria <td< th=""><th>13:00</th><th>20m</th><th>Musculoskeletal Diseases, by Anna Tatarnikova</th><th>Kovalskiy, Gennadij Lukyanov, Sergei Makarov, ITMO University, Russia, and Seeger Th,</th></td<>	13:00	20m	Musculoskeletal Diseases, by Anna Tatarnikova	Kovalskiy, Gennadij Lukyanov, Sergei Makarov, ITMO University, Russia, and Seeger Th,
13:4020mLukyanov, ITMO University, Anna Rassadina, Modern Medical Technology Medical Holding, Russia, and Aleksej Malyshev, University of Siegen, GermanyApproaches on the Performance of Emotion 	13:20	20m	Daniil Tomashevich and Yulia Bobrova, Saint- Petersburg Electrotechnical University "LETI",	Mulyukin and Tatyana Kossovich, ITMO University, Russia
14:00Wavelet Analysis of Compressed Biomedical Signals, by Andrey Stepanov, The Bonch-Bruevich Saint-Petersburg State University of Telecommunications, RussiaMobile Device Security, Management of Personal and Business Privacy, by Ekaterina Pshehotskaya and Oleg Mikhalsky, Polytechnic University, Russia14:201.10hLunch breakSession: Network Technologies 	13:40	20m	Lukyanov, ITMO University, Anna Rassadina, Modern Medical Technology Medical Holding, Russia, and Aleksej Malyshev, University of	Approaches on the Performance of Emotion Recognition Methods Based on SVM, by Daniil Belkov, Konstantin Purtov and Vladimir Kublanov,
Session: Network Technologies Room:Chairman: Dmitry Korzun15:3020mCommunication Network for Remote Monitoring of Wind Turbine based on Infrared Camera, by Shahid Hussain and Young-Chon Kim, Chonbuk National University, South Korea15:5020mMobile Edge Computing Services for Dynamic Quality of Service Control, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria16:1020mOn Telecommunication Software Engineering Education, by Manfred Sneps-Sneppe, Ventspils University College, Latvia, Dmitry Namiot and Vladimir Sukhomlin, Lomonosov Moscow State University, Russia16:3020mMobile Edge Computing Applications for Connectivity Management, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria16:5020mSpectral Efficiency of Uplink SCMA System with CSI Estimation, by Alexander Sergienko and Vyacheslav Klimentyev, Saint-Petersburg Electrotechnical University "LETI", Russia17:1020mDynamic Routing and Spectrum Allocation to Minimize Fragmentation in Elastic Optical Networks, Yadi Xu and Young-Chon Kim, Chonbuk National University, South KoreaSession: Demo Pitches in Pecha Kucha format Room: Chairman: Ilya ParamonovChairman: Ilya Paramonov17:3020mPitch presentations of the demos (2min/pitch)17:5010mPreparation to Social event combined with Demo & Poster SessionSession: Conference social event combined with Demo and Poster sessionSession: Chairman: Ilya Paramonov18:003hDemo & Poster Session combined with Social Event	14:00	20m	Wavelet Analysis of Compressed Biomedical Signals, by Andrey Stepanov, The Bonch-Bruevich Saint-Petersburg State University of	Mobile Device Security, Management of Personal and Business Privacy, by Ekaterina Pshehotskaya and Oleg Mikhalsky, Polytechnic University,
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15:3020mCommunication Network for Remote Monitoring of Wind Turbine based on Infrared Camera, by Shahid Hussain and Young-Chon Kim, Chonbuk National University, South Korea15:5020mMobile Edge Computing Services for Dynamic Quality of Service Control, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria16:1020mOn Telecommunication Software Engineering Education, by Manfred Sneps-Sneppe, Ventspils University College, Latvia, Dmitry Namiot and Vladimir Sukhomlin, Lomonosov Moscow State University, Russia16:3020mMobile Edge Computing Applications for Connectivity Management, by Evelina Pencheva and Ivaylo Atanasov, Technical University of Sofia, Bulgaria16:3020mSpectral Efficiency of Uplink SCMA System with CSI Estimation, by Alexander Sergienko and Vyacheslav Klimentyev, Saint-Petersburg Electrotechnical University "LETI", Russia17:1020mDynamic Routing and Spectrum Allocation to Minimize Fragmentation in Elastic Optical Networks, Yadi Xu and Young-Chon Kim, Chonbuk National University, South KoreaSession: Demo Pitches in Pecha Kucha format Room: Chairman: Ilya ParamonovPreparation to Social event combined with Demo & Poster Session17:5010mPreparation to Social event combined with Demo & Poster SessionSession: Conference social event combined with Demo and Poster session Room:Chairman: Ilya Paramonov18:003hDemo & Poster Session combined with Social Event			work Technologies	
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21:00 Closing of Day 4	18:00	3h	Demo & Poster Session combined with Social Event	
		0 Closing of Day 4		





April 7 (Friday)

Saint Petersburg State Electrotechnical University "LETI" campus, Building 5, ul. Prof. Popova, 5

09:30	30m	n Conference registration	
Sessio	n: Soft	ware Design II	Session: Image and Video processing
Room		Chairman: Andrey Vasiliev	Room: Chairman: Vladimir Khtyashchev
10:00	20m	The Tasks of Modeling the Changes in Audiences of Modern Information and Communication Services by Methods of Cellular Automata, by Anton Zarubin, Anastasiia Saveleva, Oleg Kyzyurov, Sergei Pavlov and Innokentii Patrushev, The Bonch-Bruevich Saint- Petersburg State University of Telecommunications, Russia	Comparison of Image Quality Assessment Methods for Multi-focused Image Fusion, by Andrey Noskov and Andrey Priorov, Yaroslavl State University, Russia
10:20	20m	Topic Model Visualization with IPython, by Sergey Karpovich, Mos.ru, Alexander Smirnov, SPIIRAS, and Nikolay Teslya, ITMO University, Russia	Cellular Neural Network as a Non-linear Filter of Impulse Noise, by Elena Solovyeva, Saint- Petersburg Electrotechnical University "LETI", Russia
10:40	20m	Hybrid Recommender Systems: The Review of State-of-the-Art Research and Applications, by Danilova Viktoriia, ITMO University, and Ponomarev Andrew, SPIIRAS, Russia	The Formation of Synthesized Image Base by Noise Influence Model, by Vasiliy Kirnos, Andrey Priorov and Vladimir Khtyashchev, Yaroslavl State University, Russia
11:00	20m	Algebraic Bayesian Networks: Probabilistic-Logic Inference Algorithms and Storage Structures, by Anastasia Birillo and Ekaterina Mal'chevskaya, SPIIRAS, and Andrey Zolotin and Nikita Kharitonov, St. Petersburg State University, Russia	On Color-to-Gray Transformation for Distributing Color Digital Images, by Elena Yakovleva, St. Petersburg State University, Valery Gorbachev, Elena Kaynarova and Ivan Metelev, St.Petersburg State University of Industrial Technology and Design, Russia
11:20	20m	Personalized Configuration of Immaterial Products, by Tatiana Levashova and Michael Pashkin, SPIIRAS, Russia	Cross-platform App Development for Blended Learning Courses, by Vladimir Pavlov, Vladimir Khryashchev and Natalia Kasatkina, Yaroslavl State University, Russia
11:40	20m	Coffe	ee break
Sessio Room		wledge and Data Management I Chairman: Nikolay Teslya	Session: Solutions for Tourists and Drivers Room: Chairman: Alexey Kashevnik
12:00	20m	Context-Oriented Knowledge Management for Decision Support in Business Socio-Cyber- Physical Networks: Conceptual and Methodical Foundations, by Alexander Smirnov, SPIIRAS, Russia, and Kurt Sandkuhl, University of Rostock, Germany	Interactivity in Multimedia Information Systems for Cultural Heritage, by Borisov Nikolay, Artem Smolin and Zakharkina Valentina, ITMO University, Russia
12:20	20m	Distributed OAIS-based Digital Preservation System with HDFS Technology, by Igor Nikiforov, Nikita Voinov, Pavel Drobintsev and Vsevolod Kotlyarov, Peter the Great Saint- Petersburg Polytechnic University and Dell EMC, Russia	Driver Assistance Systems: State-of-the-Art and Possible Improvements, by Alexander Komzalov, ITMO University, and Nikolay Shilov, SPIIRAS, Russia
12:40	20m	The Choice between Delta and Shift Operators for Low Precision Data Representation, by Denis Butusov, Timur Karimov, Artur Karimov, Dmitry Kaplun, Saint-Petersburg Electrotechnical University "LETI", Russia, Yennun Huang and	Semantic Network for a Smart Museum of Everyday Life History: Construction and Data Mining, by Oksana Petrina, Valentina Volokhova, Svetlana Ialovitsyna, Aleksey Varfolomeyev and Dmitry Korzun, Petrozavodsk State University,









		Szu-Chuang Li, CITI Academia Sinica, Taiwan	Russia
12.00		The Model of Information Diffusion in Social Networking Service, by Ilya Viksnin, Liubov	A Systematic Review of Proactive Driver Support Systems and Underlying Technologies, by Andrei
13:00	20m	Iurtaeva, Nikita Tursukov and Aleksandr Muradov, ITMO University, Russia	Taramov, ITMO University, and Nikolay Shilov, SPIIRAS, Russia
13:20	1.20h	Lunc	h break
Sessio	n: Kno	wledge and Data Management II	Session: Embedded Systems and Networks
Room:	: (Chairman: Alexander Smirnov	Room: Chairman: Valentin Olenev
14:40	20m	Competence Management Systems in Organisations: a Literature Review, by Viktoriia Stepanenko, ITMO University, and Alexey Kashevnik, SPIIRAS, Russia	Visual development environment for OpenVX, by Alexey Syschikov, Boris Sedov, Konstantin Nedovodeev and Sergey Pakharev, SUAI, Russia
15:00	20m	Fuzzy Model for Analysing Implicit Factor Influence, by Dmitry Nazarov, Dmitry Azarov, Yakov Silin, Svetlana Begicheva, Ural State University of Economics, and Gennady Smorodin, Dell EMC, Russia	Computer-Aided Design System for On-board SpaceWire Networks Simulation and Design, by Valentin Olenev, Yuriy Sheynin, Irina Lavrovskaya, Ilya Korobkov, SUAI, Dmitry Dymov, Sergey Kochura and Vadim Shkolniy, JSC "Academician M.F. Reshetnev" Information Satellite Systems", Russia
15:20	20m	Fuzzy model for identifying significant subtle effects within a system of objects' responses, by Dmitry Nazarov and Dmitry Azarov, Ural State University of Economics, Russia	Adaptive Q-routing with Random Echo and Route Memory, by Maksim Kavalerov and Yuliya Shilova, Perm National Research Polytechnic University, Russia
15:40	20m	Open Services Provider for Supply Chains, by Anton Ivaschenko, Samara National Research University, Pavel Sitnikov, ITMO University, Michael Andreev and Oleg Surnin, SEC "Open Code", Russia	The components spatial redundancy method based on design space exploration, by Valentin Rozanov and Elena Suvorova, SUAI, Russia
16:00	20m	Coffe	ee break
Sessio	on: Smart Spaces and Internet of Things Session: Advanced Text Processing Solutions		
Room:		Chairman: Dmitry Namiot	Room:Chairman: Alexander Osochkin
16:20	20m	On Internet of Things Education, by Dmitry Namiot, Lomonosov Moscow State University, Russia, Manfred Sneps-Sneppe Ventspils University College, Latvia, and Youseph Daradkeh, Prince Sattam bin Abdulaziz University, KSA	Syntax Description Synthesis Using Gradient Boosted Trees, Arseny Astashkin, Moscow Institute of Physics and Technology, and Kirill Chuvilin, Institute of Computing for Physics and Technology, Russia
16:40	20m	The Smart-M3 CuteSIB Implementation: Performance Scalability Evaluation, by Andrey Vdovenko, Ivan Galov and Dmitry Korzun, Petrozavodsk State University, Russia	Combined method of text classification, by Alexander Osochkin, Vladimir Fomin and Alexsander Flegontov, Herzen State Pedagogical University, Russia
17:00	20m	Smart-M3-Driven Smart Space Creation Using a DD-WRT-Based Device, by Sergei Mikhailov, ITMO University, and Alexey Kashevnik, SPIIRAS, Russia	Neural Networks usage in Ontology Matching: Literature Review, by Pavel Chupryna, ITMO University, and Nikolay Teslya, SPIIRAS, Russia
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Thank you and looking forward to see you at the 21th FRUCT in Helsinki on November 6-10, 2017!

9



Demo Session of the 20th FRUCT Conference

Time: 6 April 2017 Time: 18:00 – 21:00 Place: SPb ETU "LETI" campus, Building 5, ul. Prof. Popova, 5 Room: The main auditorium

The Demo section of the 20th FRUCT conference will be combined with the demo session of the Regional seminar on Mobile Healthcare, early diagnostics and fitness and with the conference social event. The first part is a promotional section to present/introduce demo projects to the public. Presentations will be done following the Pecha Kucha style. Main idea of this section is to make people aware of the demo and become interested to visit the demo stand at the second part of the session. During the second part of demo session teams get a place to install the demo and poster. If you have some special requirements please contact organizing committee by email info@fruct.org.

Pecha Kucha Presentation Format

Pecha Kucha is a presentation technique where a speaker shows a definite number of slides (usually 20 or 15), each for 20 seconds. The slides are changed automatically during the talk. The main intention for Pecha Kucha presentation style is to prevent participants from being too verbose and to make their talks more dynamic and impressive.

Pecha Kucha Night is an event where each speaker uses Pecha Kucha presentation, and speakers change each other in non-stop fashion. Initially invented by architects, this kind of event is often used to present creative projects or work; nowadays it is also used for R&D talks too. Pecha Kucha Night format allows all participants to make announcements about their demos in attractive and time-efficient way. That is why we have chosen this format for demo promotion section at FRUCT conference. More information can be found at http://www.fruct.org/demo.

How to prepare Pecha Kucha presentation

Here is an instruction on how to prepare your Pecha Kucha style presentation for Demo promotion section. Your presentation must contain exactly 6 slides, and each of them will be displayed for 20 seconds. The slides will be changed automatically. So, the whole presentation will take exactly 2 minutes (it should be noted that usually Pecha Kucha presentation has 20 slides, but we have to reduce the number due to a large amount of submitted presentations). Provide the information about yourself and your presentation on the first slide (name, institution, title of your presentation).

The main purpose of your talk would be to interest people, so your presentation should make absolutely clear the main ideas of your project and explain what you plan to show at the demo stand. Make your presentation fascinating to attract attendees and avoid technical details in your talk. Reveal one main idea on each slide. Do not overload your slides with information. Remember, that each slide is displayed only for 20 seconds. Place no more than 2 lines of text per slide, or one big picture. Avoid using slide titles. Do not duplicate the same slides in your presentation — it is cheating! If you see that 20 seconds for a particular slide is not enough for you, try to decouple it into the two or more, or omit the details. Do not place "Thank you" or "Q&A" slides in the presentation. Pecha Kucha session does not imply any questions from the auditory. All the questions will be asked afterwards in a poster room. Prepare your speech thoroughly and beforehand. As you have only 20 seconds per slide, it is quite impossible to improvise during the talk. Rehearse your speech several times to be sure in the absence of pauses when you wait for the slide change, or accelerations when you fails to follow your slides. Try to speak in the same pace during all the presentation. It definitely depends on your text, so try to prepare near the same amount of text in speech for each slide.

Check list

- Use exactly 6 slides.
- Place information about yourself and your presentation (name, institution) on the first slide.
- Reveal one main idea on each slide.
- Place no more than 2 lines of text or 1 large image per slide.
- Do not duplicate the same slides, do not place "Thank you" or "Q&A" slides in the presentation.
- Do not use any slide change animation.
- Prepare your speech thoroughly and do not forget to rehearse it.



List of Demos (preliminary list based on submissions by March 27, 2017)

- 1. Voice Assistant for Sailfish OS, by Petr Vytovtov, Kalashnikov ISTU
- 2. Smart-M3 CuteSIB Demo for a Wireless Router with OpenWrt-Based Firmware, by Sergey Marchenkov, Dmitry Baganov and Dmitry Korzun, Petrozavodsk State University
- 3. "Drive Safely" Driver Assistance Application for Android, by Igor Lashkov, ITMO University and Alexey Kashevnik, SPIIRAS





FOR NOTES





FOR NOTES





FOR NOTES

The 20th Conference of Open Innovations Association FRUCT & ISPIT 2017 conference

Program

Saint-Petersburg, Russia 3-7 April 2017

A special word of thanks goes to the

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CALL FOR PARTICIPATION 21st Conference of Open Innovations Association FRUCT Helsinki, Finland, 6-10 November 2017



Overview

FRUCT is the largest regional cooperation framework in form of open innovations between academia and industry. FRUCT conferences are attended by the representatives of more than 25 FRUCT member universities from Russia, Finland, Denmark, India, Italy and other countries, industrial experts from Dell EMC, Nokia, MariaDB, Intel, Jolla, Open Mobile Platform, Skolkovo and a number of guests from other companies and universities.

The conference is an R&D forum for the most active students, academic experts, industrial researchers and influential representatives of business and government. The conference invites the world-class academic and industrial researchers to give lectures on the most relevant topics, provides an opportunity for student teams to present progress and results of their R&D projects, meet new interesting people and form new R&D teams. The conference program consists of 3 to 5 intensive (½ or full day) trainings on the most promising technologies, plus 3 days of the main conference.

We warmly welcome all university research teams to participate in the conference, present your research and join the FRUCT Association. IEEE members and representatives of Russian and Finnish universities are entitled to large discounts. Registration to the conference is open at <u>http://www.fruct.org/conference21</u>.

List of conference topics

- Location Based Services, Navigation, Logistics management, e-Tourism solutions
- Mobile Healthcare, e-Health solutions, Wellbeing, Fitness, Automated diagnostics
- IoT, Smart Spaces, Future services: Proactivity, Context Analysis, Data Mining and Big Data services
- Cross-platform software, innovative mobile services, new approaches to application design, innovative UX
- Smart Systems and embedded networks
- Energy efficient design & peripherals integration
- Mobile security, personal and business privacy
- Modern network architectures, Air interfaces and protocols, Emerging wireless technologies
- Mobile multimedia, video services and solutions
- Communications Systems Integration and Modeling

Call for papers

Depending on the type and maturity level please submit your work into one of the following 3 categories:

1. <u>Full paper</u> (min 6 full pages, max 12 pages) **OR**

Submission deadline: 15 September 2017

Notification of acceptance: 2 October 2017

Camera-ready deadline: 9 October 2017

2. Short paper (min 200 words, max 5.5 pages)

3. Poster / Demo proposal: submission deadline: 3 November 2017, or can be an extension to the paper

Please follow paper templates that you can find at <u>http://www.fruct.org/cfp</u>.

Publication

All submitted Full Papers will be peer reviewed by the technical committee. Accepted Full papers and Short papers will be published in the FRUCT conference proceeding (ISSN 2305-7254). All accepted Full Papers will be published in **IEEE Xplore**, and indexed by **Scopus** and **DBLP**. Also proceedings of Full Papers are included to **Scimago Journal Rank** <u>http://scimagojr.com/journalsearch.php?q=21100305223&tip=sid</u>. Selected papers will be recommended for CPCI indexing (**Web of Science**) and invited to submit extended version the **IJERTCS** journal (Scopus index journal).

Contacts

Paper templates, conference news and other relevant details are available at <u>http://www.fruct.org/conference21</u>. If you get some questions that are not covered at the conference web page, feel free to send email to <u>info@fruct.org</u>.