



Program of

The 22nd Conference of Open Innovations Association FRUCT

Jyvaskyla, Finland
15-18 May 2018





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 QUAE LIBET!
SEMPER SINT IN FLORE!

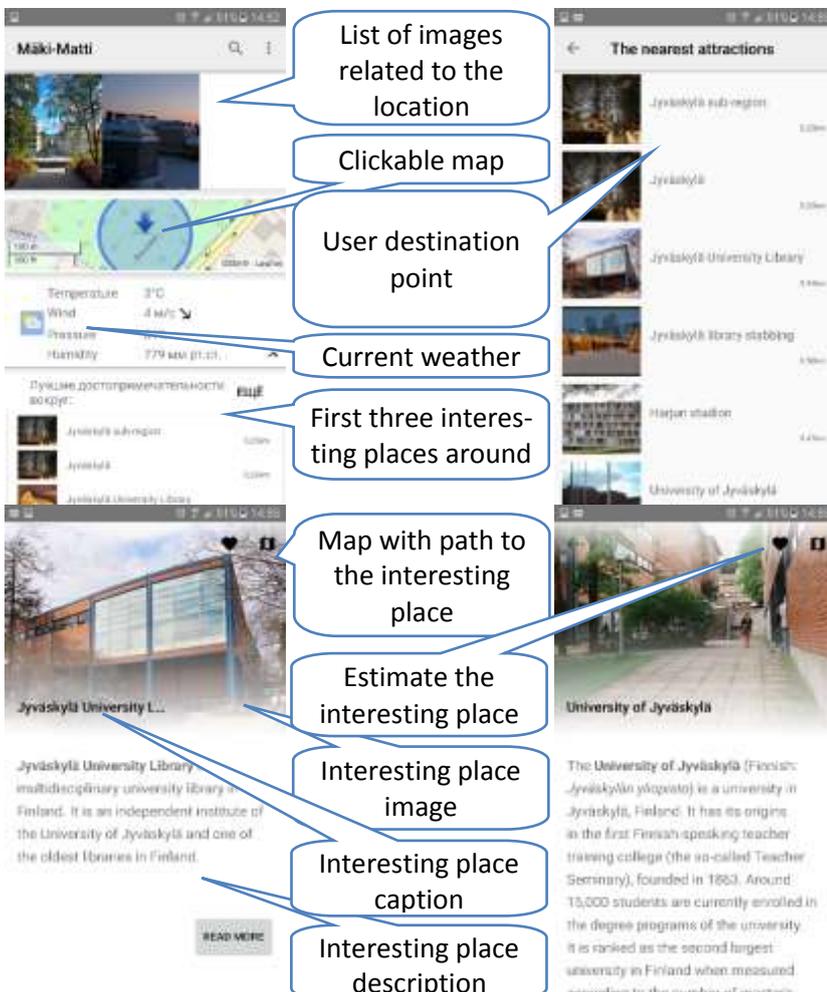
VIVANT OMNES VIRGINES
FACILES, FORMOSAE!
VIVANT ET MULIERES,
TENERAE, AMABILES,
BONAE, LABORIOSAE!

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

The conference venue is located in Agora Building at University of Jyväskylä's Mattilanniemi Campus, Mattilanniemi 2. The city bus station can be found between the Forum shopping centre and the station square on Vapaudenkatu 40. Buses number 5K, 5 and 20 stop at Agora building. A single ticket costs 3 euro. You can get to the campus by foot in 25 minutes from the city center.



We recommend you to use Tourist Assistant - TAIS - a mobile tourist guide for Android devices. Based on your current location, it provides recommendations about places of interest around. You can see your location in the map, browse information about attraction around, check photos, current weather and create path to place of interest. The information is aggregated from Wikipedia, Wikivoyage, Wikitravel, Panoramio.

During FRUCT conference TAIS will allow participants to easily find way to the locations of the main conference. In the main screen please select one of main attractions "FRUCT 22nd Conference". When the user selects one of the attractions he/she can open map and see path from current location to the FRUCT 22nd conference place.



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FRUCT Chair: Sergey Balandin

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Program of the 22nd FRUCT conference

May 15-18, 2018, Jyväskylä, Finland

University of Jyväskylä, Agora Building, Mattilanniemi 2, Rooms: Beeta, Delta, Lea Pulkkisen sali, Auditorio 2

DATE	TIME	PROGRAM		
15.05.18	10:00-18:00	Internal meetings of FRUCT working groups (by invitation only)		
16.05.18	10:30-12:00	Conference Registration , Lobby of Agora Building		
	12:00-14:00	Opening of the 22nd FRUCT conference , Auditorio 2 Keynote talk: Self-organizing Network of Autonomous Agents for Emerging IoT Applications, by Vladimir Gorodetsky, SPIIRAS, Russia		
	14:00-14:30	Coffee break , Lobby of Agora building		
	14:30-16:30	Big Data, Data Mining, Storage and Management, Auditorio 2		
	16:30-17:00	Coffee break , Lobby of Agora building		
	17:00-18:00	Software Development and Data Management, Auditorio 2	AMICT I, room Delta	
17.05.18	09:00-09:30	Conference Registration , Lobby of Agora Building		
	09:30-10:15	Keynote talk: IoT/embedded vs. Security: learn from the past, apply to the present, prepare for the future, by Andrei Costin, University of Jyväskylä, Finland, room Beeta		
	10:15-10:45	Coffee break , Lobby of Agora building		
	10:45-12:45	Smart Systems and Embedded Networks, room Beeta		
	12:45-14:00	Lunch , Restaurant of Agora building		
	14:00-16:00	AMICT II, room Beeta		
	16:00-16:30	Coffee break , Lobby of Agora building		
	16:30-17:45	Image and Video Processing, room Beeta	AI, Robotics and Automation Systems, room Delta	
	17:45-18:00	Break , moving to room Lea Pulkkisen sali		
	18:00-18:30	Pecha Kucha pitches of demos, room Lea Pulkkisen sali		
18:30-21:00	Demo/Poster Session and Social Event , room Lea Pulkkisen sali			
18.05.18	09:00-09:30	Conference Registration , Lea Pulkkisen sali		
	09:30-10:30	Keynote talk: Ultra Reliable Low Latency Communications (URLLC): Standardization and Applications, by Dmitry Petrov, Nokia, Finland, Lea Pulkkisen sali		
	10:30-11:00	Coffee break , next to Lea Pulkkisen sali		
	11:00-12:45	Next Generation Networks and Emerging Wireless Technologies, Lea Pulkkisen sali	eHealth, room Delta	
	12:45-14:00	Lunch , Restaurant of Agora building		
	14:00-15:45	Smart Spaces and IoT, Lea Pulkkisen sali		
	15:45-16:00	Official closing of the 22nd FRUCT conference , Lea Pulkkisen sali		

Program of the 22nd FRUCT conference

May 15-18, 2018, Jyväskylä, Finland

May 16 (Wednesday)

University of Jyväskylä, Agora Building, Mattilanniemi 2, Rooms: Delta, Auditorio 2

10:30	1.45h	22nd FRUCT Conference Registration, Lobby of Agora Building	
Session: Official opening of the 22 nd FRUCT conference			
Room: Auditorio 2		Chairman: Sergey Balandin	
12:15	15m	Official opening of the 22 nd FRUCT conference	
12:30	30m	Addressing to conference participants from the Faculty of Information Technology and Presentation of International Cooperation Programs at University of Jyväskylä, by Timo Hamalainen, University of Jyväskylä, Finland	
13:00	1h	Keynote talk: Self-organizing Network of Autonomous Agents for Emerging IoT Applications, by Vladimir Gorodetsky, SPIIRAS, Russia	
14:00	30m	Coffee break, Lobby of Agora building	
Session: Big Data, Data Mining, Storage and Management			
Room: Auditorio 2		Chairman: Vladimir Gorodetsky	
14:30	15m	Survey on Deduplication Techniques in NAND Flash-Based Storage, by Evgeny Ivashko, Alexander Rumyantsev and Ilya Chernov, Institute of Applied Mathematical Research, KRCRAS, Vadim Ponomarev and Anton Shabaev, Petrozavodsk State University, Russia	
14:45	15m	Temporal Database Architecture Enhancements, by Michal Kvet and Karol Matiaszko, University of Žilina, Slovakia	
15:00	15m	An Ontology of Machine Learning Algorithm and Human Activity Recognition Data Processing, by Man Tianxing, China, ITMO University and Nataly Zhukova, ITMO University, Russia	
15:15	15m	An Approach to Clustering Models Estimation, by Ildar Baimuratov and Nataly Zhukova, ITMO University, Russia	
15:30	15m	Methods to Identify Fake News in Social Media Using Machine Learning, by Arsenii Tretiakov, Denis Zhuk and Andrey Gordeichuk, ITMO University, Russia	
15:45	15m	Automatic Online Fake News Detection Combining Content and Social Signals, by Marco L. Della Vedova and Eugenio Tacchini, Università Cattolica del Sacro Cuore, Gabriele Ballarin, Italy, and Stefano Moret, Ecole Polytechnique Fédérale de Lausanne, Switzerland, Massimo Di Pierro, DePaul University, Luca de Alfaro, UC Santa Cruz, United States	
16:00	15m	Web-Service for Drive Safely System User Analysis: Architecture and Implementation, by Aleksandr Fedotov and Igor Lashkov, ITMO University, Alexey Kashevnik, SPIIRAS, Russia	
16:15	15m	Reserved	
16:30	30m	Coffee break, Lobby of Agora building	
Session: Software Development and Data Management		Session: AMICT I	
Room: Auditorio 2		Room: Delta	
Chairman: Alexey Kashevnik		Chairman: Dmitry Korzun	
17:00	15m	Introduction to Multimodal Data Analysis Approach for Creation of Library Catalogues of Heterogeneous Objects, by Olga Kalyonova and Ivan Perl, ITMO University, Russia	Time-Dependent Multiple Depot Vehicle Routing Problem on Megapolis Network under Wardrop's Traffic Flow Assignment, by Alexander Mugayskikh and Victor Zakharov, Saint Petersburg State University, Russia, Tero Tuovinen, University of Jyväskylä, Finland
17:15	15m	Blockchain Platforms Overview for Industrial IoT Purposes, by Nikolay Teslya, SPIIRAS, and Igor Ryabchikov, ITMO University, Russia	Verification of the Stability of a Two-Server Queuing System With Static Priority, by Evsey Morozov, Institute of Applied Mathematical Research, KRCRAS, and Maria Maltseva, Petrozavodsk State University, Russia, Bart Steyaert, Ghent University, Belgium

17:30	15m	Motivate Online Users by Moderating and Providing Tasty Testing Experiences, by Weiping Huang, Lotta Haukipuro, Minna Pakanen, Satu Väinämö and Leena Arhippainen, University of Oulu, Finland	Discrete-Event Modeling of a High-Performance Computing Cluster with Service Rate Control, by Alexander Rumyantsev, Institute of Applied Mathematical Research, KRCRAS and Taisia Morozova, Petrozavodsk State University, Russia, Robert Basmadjian, Universitaet Passau, Germany
17:45	15m	Adaptation of System Dynamics Model Execution Algorithms for Cloud-based Environment, by Alexey Mulyukin and Ivan Perl, Saint-Petersburg National Research University ITMO, Russia	On Digital Economy Issues Looking From the Information Systems Viewpoint, by Manfred Sneps-Sneppe, Ventspils University College, Maris Alberts, University of Latvia, Latvia, and Dmitry Namiot, Moscow State University, Russia
18:00		Closing of Day	

May 17 (Thursday)

University of Jyväskylä, Agora Building, Mattilanniemi 2, Rooms: Beeta, Delta, Lea Pulkkisen sali

09:00	30m	Conference registration , Lobby of Agora Building	
09:30	45m	Keynote talk: IoT/embedded vs. Security: learn from the past, apply to the present, prepare for the future, by Andrei Costin, University of Jyväskylä, Finland, room Beeta	
10:15	30m	Coffee break , Lobby of Agora building	
Session: Smart Systems and Embedded Networks		Chairman: Nikolay Teslya	
Room: Beeta			
10:45	15m	A Hardware-in-Loop Simulation of DC Microgrid using Multi-Agent Systems, by Diana Rwegasira, Aron Kondoro, Amleset Kelati and Hannu Tenhunen, Royal Institute of Technology, Sweden, Imed Ben Dhaou, Qassim University, Saudi Arabia, Nerey Mvungi, University of Dar es Salaam, Tanzania	
11:00	15m	A Design of Cyber-physical Production System Prototype Based on an Ethereum Private Network, by Maxim Afanasiev, Anastasiya Krylova, Sergey Shorokhov, Yuri Fedosov and Anastasiia Sidorenko, ITMO University, Russia	
11:15	15m	Network Topology Transformation for Fault Tolerance in SpaceWire Onboard Networks, by Irina Lavrovskaya and Valentin Olenev, Saint-Petersburg State University of Aerospace Instrumentation, Russia	
11:30	15m	Deadlock-Free Routing in SpaceWire Onboard Network, by Lev Kurbanov, Elena Suvorova and Ksenia Rozhdestvenskaya, Institute of High Performance Computer and Networks Technologies, Russia	
11:45	15m	Measurement of Inductance of Liquefied Natural Gas, by Viktor Makarov, Arkady Klarin, Viktor Shurygin, Alexander Dyumin and Igor Yadykin, National Research Nuclear University MEPhI, Russia	
12:00	15m	Redundant Hardware Components for ASIC. RTL Model and Synthesis, by Valentin Rozanov, Elena Suvorova and Yuriy Sheynin, SUAI University, Russia	
12:15	15m	Queuing System for the SpaceFibre Standard, by Ilya Korobkov, SUAI University, Russia	
12:30	15m	A Smart-parking Management System Using IoT Technology, by Imed Ben Dhaou, Ali Alsabhawi and Oumaima Guedhami, Qassim University, Saudi Arabia, Aron Kondoro and Hannu Tenhunen, Royal Institute of Technology, Sweden	
12:45	1.15h	Lunch , Restaurant of Agora building	
Session: AMICT II		Chairman: Valtteri Niemi	
Room: Beeta			
14:00	15m	Compact Fixed-Point Filter Implementation, by Timur Karimov, Denis Butusov, Valerii Andreev, Vyacheslav Rybin and Dmitry Kaplun, Saint-Petersburg Electrotechnical University "LETI", Russia	
14:15	15m	Mathematical Modeling in Adaptive Corporate Training, by Gennady Sigovtsev, Marina Charuta and Igor Semenov, Petrozavodsk State University, Russia	
14:30	15m	Analysis of User Activity in Wireless Local Area Network of Petrozavodsk State University, by Aleksey Chuvak and Tatyana Surovtsova, Petrozavodsk State University, Russia	

14:45	15m	Use of Everyday Mobile Video Cameras in IoT Applications, by Nikita Bazhenov and Dmitry Korzun, Petrozavodsk State University, Russia	
15:00	15m	Performance Modeling for Traffic Congestion Reduction in GSM Networks, by Hemant Purohit, Jodhpur Institute of Engineering & Technology (JIET), India, and Dmitry Korzun, Petrozavodsk State University, Russia	
15:15	15m	Information Technologies Efficiency Models for Agile Systems Functioning, by Alexander Geyda and Igor Lysenko, SPIIRAS, Russia	
15:30	15m	Recognition of Folklore Texts and Author's Poems Using Classification Trees and Neural Networks, by Ludmila Shchegoleva, Aleksandr Lebedev and Nikolai Moskin, Petrozavodsk State University, Russia	
15:45	15m	The Prosody of a Poet's Prose: Comparative Analysis of the Rhythmic Structure of A. Pushkin Prose, by Ekaterina Nakonechnaya, National Research University "Higher School of Economics", Russia	
16:00	30m	Coffee break, Lobby of Agora building	
Session: Image and Video Processing		Session: AI, Robotics and Automation Systems	
Room: Beeta		Room: Delta	
Chairman: Sergey Bezzateev		Chairman: Timofey Turenko	
16:30	15m	Review of Noise Reduction Methods and Estimation of their Effectiveness for Medical Endoscopic Images Processing, by Natalia Obukhova, Alexandr Motyko and Alexandr Pozdeev, Saint Petersburg Electrotechnical University "LETI", and Boris Timofeev, SUAI University, Russia	Evaluation of Modern Laser Based Indoor SLAM Algorithms, by Kirill Krinkin, Open Source and Linux Lab, Anton Filatov and Artyom Filatov, Saint-Petersburg Electrotechnical University "LETI", Artur Huletski and Dmitriy Kartashov, St. Petersburg Academic University, Russia
16:45	15m	Methods of Semantic Integrity Preservation in the Pattern Recognition Process, by Iuliia Kim, Anastasiia Matveeva, Ilya Viksnin and Roman Patrikeev, ITMO University, Russia	Data Distribution Services Performance Evaluation Framework, by Kirill Krinkin, Anton Filatov, Artyom Filatov, Oleg Kurishev and Alexander Lyanguzov, Saint-Petersburg Electrotechnical University "LETI", Russia
17:00	15m	DSLR Imperfections Extraction From Image For Source Detection, by Elena Aminova, Ilya Trapeznikov, Andrey Priorov and Vladimir Khryashchev, Yaroslavl State University, Russia	Socio-Cyberphysical System Resource Semantic Interoperability: General Scenarios and Ontology, by Darya Kalyazina, ITMO University and Alexey Kashevnik, SPIIRAS, Russia
17:15	15m	Botanicum: a Telegram Bot for Tree Classification, by Daria Korotaeva, Maksim Khlopotov, Anastasiia Makarenko, Ekaterina Chikshova, Natalia Startseva and Anastasiia Chernysheva, ITMO University, Russia	Software System in Waterloo Pod, by Dinara Nikolaeva, Higher School of Economics, Rinat Idiyatullin, Kazan State Power Engineering University, Russia, and Ruslan Nikolaev, Waterloo, Canada
17:30	15m	Convolutional Neural Network for Satellite Imagery, by Vladimir Khryashchev, Vladimir Pavlov, Andrey Priorov and Evgeniya Kazina, Yaroslavl State University	Review, Classification and Comparison of the Existing SLAM Methods for Groups of Robots, by Maxim Kuzmin, Saint-Petersburg Electrotechnical University "LETI", Russia
17:45	15m	Break, moving to room Lea Pulkkisen Sali	
Session: Pecha Kucha Pitches of Demos		Chairman: Ksenia Lagutina	
Room: Room: Lea Pulkkisen Sali			
18:00	25m	Pitch presentations of the demos (2min/pitch)	
18:25	5m	Preparation to Social event combined with Demo & Poster Session	
Session: Conference social event combined with Demo and Poster session		Chairman: Ksenia Lagutina	
Room: Lea Pulkkisen sali			
18:30	2.5h	Demo & Poster Session combined with Social Event	
21:00		Closing of Day	

May 18 (Friday)

University of Jyväskylä, Agora Building, Mattilanniemi 2, Rooms: Lea Pulkkisen sali and Delta

09:00	30m	Conference Registration, Lea Pulkkisen sali	
09:30	1h	Keynote talk: Ultra Reliable Low Latency Communications (URLLC): Standardization and Applications, by Dmitry Petrov, Nokia, Finland, in Lea Pulkkisen sali	
10:30	30m	Coffee break, next to Lea Pulkkisen sali	
Session: Next Generation Networks and Emerging Wireless Technologies Chairman: Dmitry Petrov Room: Lea Pulkkisen sali		Session: eHealth Chairman: Alexey Kashevnik Room: Delta	
11:00	15m	On 5G Projects for Urban Railways, by Manfred Sneys-Sneppe, Ventspils University College, Latvia, and Dmitry Namiot, Moscow State University, Russia	Ambient Intelligence Based At-Home Laboratory for Personalized Monitoring and Assessment of Motion-Cognitive State in Elderly, by Alexander Meigal, Dmitry Korzun, Liudmila Gerasimova-Meigal, Alexander Borodin and Yulia Zavyalova, Petrozavodsk State University, Russia
11:15	15m	IMSI-based Routing and IMSI Privacy in 5G, by Md Mohsin Ali Khan and Valtteri Niemi, University of Helsinki, Philip Ginzboorg, Huawei Technologies, Aalto University, Finland	Open Source Tool for VH-replacement Products Discovery and Analysis, by Adel Gazizova and Andrey Zolotarev, Saint Petersburg State University, Vladislav Myrov and Anastasiya Vinogradova, Saint Petersburg Academic University, Aleksandr Cheblov, Peter the Great St.Petersburg Polytechnic University, Oksana Stanevich, Saint-Petersburg First Pavlov State Medical University, and Evgeny Bakin, Saint-Petersburg State University of Aerospace Instrumentation, Russia
11:30	15m	Privacy Preserving Shortest Path Queries on Directed Graph, by Sara Ramezani and Tommi Meskanen, University of Helsinki, Valtteri Niemi, University of Turku, Finland	Using Smartphone Inertial Measurement Unit for Analysis of Human Gait: A Feasibility Study, by Alexander Meigal, Liudmila Gerasimova-Meigal, Kirill Prokhorov and Alex Moschevkin, Petrozavodsk State University, Sergey Reginya, Nanoseti Ltd, Russia
11:45	15m	Location-Based Protocol for the Pairwise Authentication in the Networks without Infrastructure, by Sergey Nesteruk and Sergey Bezzateev, SUAI University, Russia	Designing a Mobile Recommender System for Hypertensive Patient Treatment Adherence, by Yulia Zavyalova, Tatiana Kuznetsova, Dmitry Korzun, Aleksandr Borodin and Alexander Meigal, Petrozavodsk State University, Russia
12:00	15m	A Planning and Optimization Framework for Hybrid Ultra-Dense Network Topologies, by Hamit Taylan Yüce, Edward Mutafungwa and Jyri Hämäläinen, Aalto University, Finland	Blood Pressure Calculation based on Data Received from Cardiac Monitor Jointly with PPG Sensor, by Kirill Orlov, Kristina Shevtsova and Yulia Zavyalova, Petrozavodsk State University, Russia
12:15	15m	End-to-End Availability of Cloud Services, by Victor Netes, MTUCI, Russia	Approaches to Analysis of Genotype and Phenotype Relation with QTL Methods, by Irina Shabalina and Elena Furta, Petrozavodsk State University, Russia
12:30	15m	EvoCut : A new Generalization of Albert-Barab'asi Model for Evolution of Complex Networks, by Shailesh Jaiswal, Manjish Pal, Mridul Sahu, Prashant Sahu and Amal Dev Sarma, National Institute of Technology, India	HHT-based Analysis of ECG Signals of Patients with Borderline Mental Disorders, by Alexander Tychkov, Andrey Kuzmin, Alan Alimuradov and Alexey Ageykin, Penza State University, Vladimir Kalistratov and Svetlana Mitroshina, K.R. Evgrafov Regional Psychiatric Hospital, Russia

12:45	1.15h	Lunch, Restaurant of Agora building	
Session: Smart Spaces and IoT		Chairman: Nikolay Teslya	
Room: Lea Pulkkisen sali			
14:00	15m	Biosignal Monitoring platform using Wearable IoT, by Amleset Kelati, University of Turku, Finland, Imed Ben Dhaou, Qassim University, Saudi Arabia, and Hannu Tenhunen, KTH Royal Institute of Technology, Sweden	
14:15	15m	Unleashing Full Potential of Ansible Framework: University Labs Administration, by Pavel Masek, Martin Stusek, Jan Krejci, Krystof Zeman, Jiri Pokorny and Marek Kudlacek, Brno University of Technology, Czech Republic	
14:30	15m	Infrastructure Layers Model of Middleware for Smart Spaces, by Sergey Marchenkov, Petrozavodsk State University, Russia	
14:45	15m	An object-oriented model for smart devices in Internet of Things (IoT), by Boris Ulitin and Eduard Babkin, National Research University Higher School of Economics, Russia	
15:00	15m	Local Ranking Exhibits Model in Semantic Network of Smart Museum, by Oksana Petrina, Petrozavodsk State University, Russia	
15:15	15m	Using Alternating Decision Trees in Multi-Leveled Hierarchical Cloud Based System, by Dmitrii Zubok, Aleksandr Maiatin, Tatiana Kharchenko and Maksim Hegai, ITMO University, Russia	
15:30	15m	Active Control with Backoff Algorithm for Reducing Broker Load in Smart Spaces, by Andrey Vdovenko, Petrozavodsk State University, Russia	
15:45	15m	Official closing of the 22nd FRUCT conference, Lea Pulkkisen Sali	

Thank you and looking forward to see you at the 23rd FRUCT in Bologna, Italy on November 13-16, 2018!

Demo Session of the 22nd FRUCT Conference

Time: 17 May 2018
Time: 18:00 – 21:00

Place: University of Jyväskylä, Agora Building
Mattilanniemi 2, Jyväskylä, Room: Lea Pulkkisen sali

The Demo section of the 22nd FRUCT conference will be combined with the conference social event. This time the Demo and Posters section is organized in cooperation with Sensors Journal (impact factor 2.677). Two best demos/posters of the conference will be recognized by the diploma and great prize, sponsored by Sensors Journal.

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. 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. The presentation will take exactly 2 minutes (it should be noted that classical Pecha Kucha 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 May 5, 2018)

1. **MariaDB MaxScale, by Timofey Turenko, MariaDB Corporation AB**

MariaDB MaxScale is a database proxy that extends the high availability, scalability and security of MariaDB Server while at the same time simplifying application development by decoupling it from underlying database infrastructure. MariaDB MaxScale is engineered with an extensible architecture to support plugins, extending its functionality beyond transparent load balancing to become, for example, a database firewall. With built-in plugins for multiple routers, filters and protocols, MariaDB MaxScale can be configured to forward database requests and modify database responses based on business and technical requirements — for example, to mask sensitive data or scale reads. The MariaDB Maxscale is also capable of performing failover and switchover. In addition, in some circumstances it is capable of rejoining a master that has gone down and later reappears. In this demo monitoring, filtering and failover capabilities of Maxscale are shown as well as its basic configuration process and usage scenarios.

2. **DriveSafety: Mobile Application and Statistics Analyzing Service, by Alexey Kashevnik, SPIIRAS, and Igor Lashkov and Aleksandr Fedotov, ITMO University**

The demo proposes the DriveSafety system that includes the mobile application for Android devices and statistics analyzing service. The mobile application that is aimed at dangerous situation determination while driving based on information from a smartphone front-facing camera and sensors. The statistics analyzing service is able to analyze the information tracked by the mobile application while its utilization and visualize it in a driver-friendly interface.

3. **Competence Management System for Residents of ITMO University Technopark, by Alexey Kashevnik and Mikhail Petrov, SPIIRAS, and Olysia Baraniuc, ITMO University**

The demo proposes the competence management system that is aimed at competence of Technopark of ITMO University residents' analysis and management. The system is developed as web application. At the moment the knowledge base is filled by residents' profile.

4. **TAIS offline mode for tourist support in case of network restrictions, by Nikolay Teslya and Sergei Mikhailov, SPIIRAS**

The proposed demo shows next stage of TAIS development. The service now is available to upload the most visited areas all around the world to user's device and providing tourist support in case of strong network restrictions. TAIS uses the embedded database management system of Android environment to store information (text descriptions and photos) and recommendations about attractions. A service for Smart-M3 has been developed to select the area bounding box and fill the database with information about attractions from various sources such as OpenStreetMap, Wikipedia and Google Images. The database is formed on the service side and then uploaded to the user's device.

5. **Cooperation of Heterogeneous Robots through Smart Space, by Nikolay Teslya, SPIIRAS**

The demo proposes a cooperation scenario of two robots constructed from different kits. The communication is based on the Smart-M3 smart space. Robots has been constructed and programmed to share information through smart space in order to make decision on joint activity in physical environment. The first robot is assembled based on the Lego Mindstorms EV3 kit. This kit allows to design simple robots with required functionality for education purposes. At the same time, there is the possibility to use electronic units, motors and sensors and program them in Java. For Wi-Fi network connection the USB module Netgear WNA1100 has been used. The LeJOS operation system has been installed to EV3 control block to connect the manipulating robot Smart-M3 platform. The second robot has been assembled based on the Makeblock robotics kit. The control board of the kit is based on a scheme of Arduino UNO, which allows equipping the robot by a wide range of sensors and motors, as well as to develop and connect own equipment for interacting with the physical world. However, the microcontroller provides a low computation power as well as highly limited memory and it cannot be connected to the wireless networks. The Raspberry Pi 3 Model B single-board microcomputer was used to expand the computation and communication power of robot.

6. **A Multiple Access Service for Video Capture Resources in Edge-Centric Internet of Things, by Nikita Bazhenov and Dmitry Korzun, Petrozavodsk State University**

Emerging Edge-Centric Internet of Things (IoT) environments become rich of video capture resources, including fixed cameras physically embedded into the environment, personal cameras carried by mobile users (e.g., smartphones), and some other everyday cameras. This demo presents a smart space-based solution to sharing the access information and control for video capture resources. The developed service supports

concurrent connection of one or more users (clients) to some IP-camera present in the IoT-environment. Our solution implements two possible ways for connecting several clients to available video cameras.

7. Smartphone-Based Objects Tracking for Motion Detection and Analysis Services, by Nikita Bazhenov and Dmitry Korzun, Petrozavodsk State University

Many digital services can use on well-elaborated methods of video processing for motion detection and analysis. The spectrum of possible application domains is diverse, to name a few: medical environments for patient monitoring and assistance at home, user activity detection and analysis in collaborative work environments, and monitoring of production equipment by nearby personnel. This demo presents how such services are constructed using the smart spaces concept and Internet of Things (IoT) technology. As a basic video recording resource, we use a smartphone (our reference case is Xiaomi Mi 5). Online video stream from such a smartphone is processed to recognize recorded objects. Our example service shows how video capture resources of an edge-centric IoT-environment can be effectively used within the smart space.

8. PATIO VR Client: User Involvement in Virtual Reality, by Weiping Huang, Ciprian Florea and Paula Alaves, University of Oulu

The PATIO is an online user community service, which is aiming to support the process of living lab activities with the participation of citizens into the innovation creation. PATIO VR Client is a Virtual Reality (VR) client to enhance the co-creation and user involvement process. It is designed as one of the applications in the PATIO platform, which gives users an opportunity to participate in the development of products and services. PATIO VR Client provides users an interactive immersive environment, where the valuable comments and feedback are collected from users by responding to surveys while experiencing accurate 3D representations of the target areas. Our use cases are currently in the context of city center of Oulu, Finland, and the Tellus Innovation Arena in the University of Oulu, where the corresponding city and campus 3D models are integrated in to the PATIO VR Client. The VR activity is defined as a collection of Points of Interest (POI). Each POI is defined as a location-question data pair, which means every question is linked to a specific GPS location. In order to implement the survey functionality for collecting user feedback, the client also needs to communicate with a survey platform, which is integrated into PATIO VR client.

9. Information Technologies Efficiency Models for Agile Systems Functioning, by Alexander Geyda, SPIIRAS

Gap between information technologies operational properties analytical estimation needs and methods and models available to meet these needs is well known. Three typical operational property indicators estimation schemes suggested. First schema assumed the operational properties as a probabilistic measure of compliance of the purposeful process random effects to the targeted values of these effects. Second schema expands probabilistic measure of compliance for the case of multiple goals possible to actualize. Third schema expands probabilistic measure of compliance with change of environment possibility. Change of environment cause agile system functioning imperative change at some moments during functioning.

10. PATIO AR Client: User Involvement in Augmented Reality, by Weiping Huang, Arttu Niemelä and Marta Cortes Orduña, University of Oulu

The authentication process is handled by the PATIO Mobile Client, which gets the credentials from the REST API based in OAuth protocol. PATIO AR Client uses those credentials to assess PATIO REST API. The AR client retrieves activity (from PATIO server) and survey (from a third Party Survey API) data through the REST API. Data includes the information of the activity, the locations of the activity survey, the survey questions and information for sending the responses. With this data, PATIO AR Client is able to place the survey questions to the corresponding locations, set the proper questions at the locations, and form the correct format for sending the responses of the surveys back to survey server through the REST API. Additionally, PATIO AR Client retrieves contents (in terms of 3D models and point clouds) related to each located survey question, where the contents are fetched directly from the PATIO server.

11. PATIO User Community and User Involvement Tool, by Weiping Huang, Ciprian Florea, Marta Cortés Orduña, Arttu Niemelä, Paula Alaves, Satu Väinämö, Minna Pakanen, Lotta Haukipuro and Leena Arhipainen, University of Oulu

The aim of the PATIO user community and user involvement tool is to support the process of living lab activities with the participation of citizens into the innovation co-creation and evaluation of services and products. Oulu Urban Living Lab (OULLabs) is founded in 2010 and managed by the University of Oulu. OULLabs is a network-like living lab, the aim of which is to provide a diverse environment for innovation, research, development and testing of new products and services in an authentic context with real users.

The 22nd Conference of Open Innovations Association FRUCT

Program

Jyväskylä, Finland
15-18 May 2018

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CALL FOR PARTICIPATION

23rd Conference of Open Innovations

Association FRUCT

Bologna, Italy, 13-16 November 2018



Overview

FRUCT is a large Pan-European cooperation network that promotes open innovations of academia and industry. FRUCT conference is a high-quality scientific event for meeting academia and business people and setting projects. The average conference is attended by 120+ participants representing over 30 member organizations and guests from other organizations. Participants come from Italy, Finland, Russia, UK, Denmark, India, Brazil and other countries and industry is primarily represented by Dell EMC, Nokia, MariaDB, Intel, Jolla, Open Mobile Platform, etc. The conference attracts most active and talented students to present their R&D projects, meet people alike, create new teams, and find employers and investors. The conference invites the world-class academic and industrial experts to lecture on the hottest topics. Traditionally the program consists of FRUCT work groups meetings and intensive (half or full day) technology trainings scheduled for Tu. **The main conference program is for Wed-Fri.** It includes regular sessions as well as thematic workshops. FRUCT23 will host a WS on IoT in Agriculture and Water Distribution.

We welcome everybody to submit papers and take part in the conference, share your research and join the FRUCT Association. Thanks to sponsors we traditionally have low registration fee and various discounts can be applied. For further details refer to <http://www.fruct.org/cfp> and the registration is open at <http://www.fruct.org/registration>.

List of conference topics

- ✓ Internet of Things and enabling technologies
- ✓ Next Generation Networks, Wireless Technologies, 5G
- ✓ Smart Spaces, Linked Data and Semantic Web
- ✓ Big Data, Data Mining, Data Storage and Management
- ✓ Knowledge and Data Managements Systems
- ✓ Location Based Services: e-Tourism/Logistics/Navigation
- ✓ Open Source Mobile OS: Architectures and Applications
- ✓ Security and Privacy: Applications and Coding Theory
- ✓ Natural Language Processing, Speech Technologies
- ✓ Software Design, Innovative Applications
- ✓ Bioinformatics, e-Health and Wellbeing
- ✓ Sensor Design, Ad-hoc and Sensor Networking
- ✓ Context Awareness and Proactive Services
- ✓ Artificial Intelligence, Robotics and Automation
- ✓ Computer Vision, Image and Video Processing
- ✓ Smart Systems and Embedded Networks
- ✓ Crowdsourcing and Collective Intelligence
- ✓ Intelligence, Social Mining and Web
- ✓ IoT based Water Distribution Management
- ✓ IoT and CPS solutions for societal challenges

Call for papers

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

1. **Full paper** (min 6 pages, max 12 pages) **OR** 2. **Short paper** (min 200 words, max 5 pages)

Submission deadline: 14 September 2018

Early-bird deadline: 24 August 2018

Notification of acceptance: **5 October 2018**

Camera-ready deadline: **12 October 2018**

3. **Poster / Demo proposal:** submission deadline: **29 October 2018**

Publication

All submitted Full Papers will be peer reviewed by the technical committee. Accepted Full papers and extended abstracts are published in the proceeding of FRUCT conference (ISSN 2305-7254). All accepted Full Papers will be included into **IEEE Xplore**, and indexed by **Scopus**, **ACM** and **DBLP**. Selected papers will be recommended for CPCI indexing (**Web of Science**) and to **IJERTCS** journal. The Full Papers proceedings will be included to **Scimago Journal Rank** <http://scimagojr.com/journalsearch.php?q=21100305223&tip=sid> and DOAJ. FRUCT is **rated by many national libraries, e.g., Norwegian, Danish** (BFI ID 8782540).

Contacts

Paper templates, conference news and other relevant details are available at <http://www.fruct.org/conference23>. If you get some questions that are not covered at the conference web page, feel free to send email to info@fruct.org.