Program of

The 27th Conference of Open Innovations Association FRUCT

Trento, Italy
7-9 September 2020

UNIVERSITÀ DI TRENTO
Department of Information Engineering and Computer Science

IEEE

IEEE ComSoc
IEEE Communications Society

applied sciences
an Open Access Journal by MDPI

future internet
an Open Access Journal by MDPI

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

Due to COVID-19 absolute majority of the 27th IEEE FRUCT conference participants selected distant participation option. Correspondingly all conference processes are adapted to best fit for online participation. All conference presentations are pre-recorded by the authors and uploaded to Youtube. The conference program contains links to individual presentations as well as links to plays lists to watch all presentations of a session. The IWIS workshop sessions are organized as solid Zoom sessions that consist of broadcasting of presentations followed by Q&A after each presentation (full imitation of onsite conference). All other sessions of the main FRUCT conference are split into 2 parts:

- Self-watching of the session presentations on Youtube. Let's take advantage of distant participation - you can invite colleagues to watch videos and the online session. I also ask you to **subscribe to FRUCT youtube channel** – we need to get 1000 subscribers to be allowed make video streaming in the future.
- Online questions and answers session held in Zoom. As some conference participants report issues with Internet connection quality we recommend to held Zoom session in Audio only mode (without video). Please prepare your questions/comments to the authors and use this time to discuss the presented works.

The conference program consists of two parallel tracks. Please note that each track uses own Zoom ID, plus an additional Zoom ID is allocated for keynote talks and IWIS workshop. The Q&A sessions for both tracks of the main FRUCT conference are scheduled without overlapping, so potentially anyone can take part in all Q&A sessions. For that you shall watch video presentations beforehand and don't forget to switch Zoom telco numbers when changing the sessions. Please note that all conference presentations (except for keynote talk and demos) will be available online starting on Friday September 4, 2020. In case of any further questions related to the conference organization don't hesitate email to us info@fruct.org.

Authors of the selected FRUCT conference papers will be invited to publish extended version of the paper in the partner journals. If you are interested in this opportunity please express it clearly to the chair of your session. The list of partner journals is as follows:

Authors of the best papers of FRUCT conference can get invitation to **FREE of charge** publish extended version of the paper in the International Journal of Embedded and Real-Time Communication Systems (IJERTCS) (ISSN 1947-3176, **Scopus** indexing, etc.).

Authors of the best papers of FRUCT conference can get invitation to publish extended version of the paper in the Future Internet journal (ISSN 1999-5903, Scopus indexing, etc.) with **20% discount**.

Authors of the best papers of FRUCT conference can get invitation to publish extended version of the paper in the Applied Sciences Journal (impact factor 2.474) with **10% discount**.

The proceedings of 27th FRUCT conference are available online:
Volume 1 (Full Papers): https://fruct.org/publications/fruct27/
Volume 2 (ACM Volume): https://fruct.org/publications/acm27/

General Facts and Statistics for the 27th FRUCT Conference:

Total submissions: **84**	Accepted Full Papers: **34**	Acceptance rate: **40%**
Total authors: **219**	representing **24** countries	From **6 continents**

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Local Chair: Luca Turchet
FRUCT President: Sergey Balandin   *Publishing team leader:* Tatiana Tyutina

Program Committee

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Program of the 27th IEEE FRUCT conference
September 7-9, 2020, Trento, Italy

University of Trento, Trento, Italy / Online participation by Youtube + Zoom
NOTE: Conference time is in Central European Summer Time (CEST, UTC+2) as conference is held in Trento, Italy

DATE	TIME	PROGRAM	
07.09.20	09:15-10:30	**Opening of the 27th FRUCT conference** **Keynote talk: One world – 7000 languages**, by Fausto Giunchiglia, University of Trento, Italy	
	10:30-10:40	**Break**	
	10:40-12:00	Natural Language Processing, Speech Technologies I	Next Generation Networks, IoT, Machine Learning and Optimization for Communications Networks (MaLeN)
	12:00-12:30	**Lunch break**	
	12:30-13:00	**Lunch break**	
	13:00-13:30	Natural Language Processing, Speech Technologies II	**Lunch break**
	13:30-14:20		Sensor Design, Ad-hoc and Sensor Networking, Predictive Maintenance (IWPM)
	14:20-14:50	Artificial Intelligence, Robotics and Automation Systems	
	14:50-15:00		**Break**
	15:00-16:10		The 1st International Workshop on the Internet of Sounds I (IWIS)
	16:10-17:30	Big Data, Knowledge, Data Mining and Data Management	
	17:30-18:30	**Demos & Posters Session**	
08.09.20	09:30-10:30	**Keynote talk: The Internet of Things: current state and future evolutions**, by Carlo Fischione, KTH Royal Institute of Technology, Sweden	
	10:30-11:50	Software Design and Innovative Applications I	The 1st International Workshop on the Internet of Sounds II (IWIS)
	11:50-13:00	Software Design and Innovative Applications II	
	13:00-13:30		**Lunch break**
	13:30-14:30	**Lunch break**	
	14:30-15:30	e-Health and Wellbeing	The 1st International Workshop on the Internet of Sounds III (IWIS)
	15:30-15:50		**Break**
	15:50-16:00	**Official closing of the 27th FRUCT conference**	

Thank you and looking forward to see you at the 28th FRUCT in Moscow, Russia on January 25-29, 2021!
(Note that it has been agreed that the 28th IEEE FRUCT conference will allow distant participation)

Program of the 27th IEEE FRUCT conference

September 7 (Monday)
University of Trento, Trento, Italy / Online participation by Youtube + Zoom
NOTE: Conference time is in Central European Summer Time (CEST, UTC+2) as conference is held in Trento, Italy

Session: Plenary session of the 27th FRUCT conference		Chairman: Luca Turchet
Zoom ID emailed to all registered participants		
09:15	15m	Official opening of the 27th FRUCT conference, by Luca Turchet and Sergey Balandin
09:30	1h	Keynote talk: One world – 7000 languages, by Fausto Giunchiglia, University of Trento, Italy
10:30	10m	Break

10:40		**Session:** Natural Language Processing, Speech Technologies I Chairman: Tatiana Sherstinova Playlist:https://www.youtube.com/watch?v=5yfPiPt3PWo&list=PLKlZJpq1JqdPQD2ljRXSiTi5UNmBVbLR-	**Session:** Next Generation Networks, IoT, Machine Learning and Optimization for Communications Networks (MaLeN) Chairman: Fabio D'Andreagiovanni Playlist:https://www.youtube.com/watch?v=i6NR_g3xNtA&list=PLKlZJpq1JqdPIpQKEfqSfpn_Km30VyqZT
10:40	1h	Comparing Statistical Measures for Discovering Emerging Terms in Scopus Publications in the Area of Decision Support in Smart City, by Nikolay Shilov and Nikolay Teslya The Influence of Different Stylometric Features on the Classification of Prose by Centuries, by Ksenia Lagutina, Nadezhda Lagutina, Elena Boychuk and Ilya Paramonov Sociolinguistic Variability of Russian Everyday Speech: A Corpus-Based Study, by Natalia Bogdanova-Beglarian, Olga Blinova, Tatiana Sherstinova, Ekaterina Baeva, Daria Gorbunova and Tatiana Popova Towards a Retrospective One-Class Oriented Approach to Parents Detection in Social Media, by Alexander Egorov, Timur Sokhin and Nikolay Butakov	Flexible Charging Using Edge Computing, by Evelina Pencheva, Ivaylo Atanasov and Denitsa Velkova Intelligent Recognition in Automated Meters Surveying, by Anton Ivaschenko, Arkadiy Krivosheev, Denis Sveshnikov, Nikita Svechkov, Tatiana Feschenko, Yuliya Tyshkovskaya and Alexandr Chuvakov Distributed Spatial Multiplexing in MIMO Systems, by Mikhail Bakulin, Vitaly Kreyndelin, Dmitry Petrov and Sergei Melnik Improved Lightweight SAFER Encryption by Using S-Boxes at Diffusion Layer for IoT Devices, by Hamza Sajjad, Muhammad Junaid Arshad and Muhammad Sohail Akram Privacy-Preserving Peer Discovery for Group Management in P2P Networks, by Tommi Meskanen, Jarkko Kuusijarvi and Valtteri Niemi
11:40	20m	Q&A in Zoom with authors of **Natural Language Processing, Speech Technologies I** session, Zoom 974-238-2704, passcode 490571	A Robust Optimization Approach to DVB-T Network Design, by Fabio D'Andreagiovanni, Hicham Lakhlef and Antonella Nardin
12:00	30m	Lunch break	Q&A in Zoom with authors of **Next Generation Networks, IoT, Machine Learning and Optimization for Communications Networks (MaLeN-2020)** session, Zoom 280-192-1973, passcode 535851
12:30	30m	Lunch break	
13:00		**Session:** Natural Language Processing, Speech Technologies II Chairman: Ksenia Lagutina Playlist:https://www.youtube.com/watch?v=cGD4d7jE16o&list=PLKlZJpq1JqdOdi4kh47QBXTA-iyxh2zBj	Lunch break
13:00	30m	Frequency Word Lists Parameters and Variability (The Case of Russian Fiction), by Tatiana Sherstinova, Alexander Grebennikov,	

Time	Dur.		
13:30	30m	Tatiana Skrebtsova, Anna Guseva, Mary Gukasian, Irina Egoshina and Maria Turygina [Measures of Syntactic Complexity and Their Change Over Time (The Case of Russian)](), by Tatiana Sherstinova, Evgenia Ushakova and Alexey Melnik [Speech Enhancement Using Dilated Wave-U-Net: An Experimental Analysis](), by Mohamed Nabih Ali Mohamed Nawar, Alessio Brutti and Daniele Falavigna [Conversational Question Generation in Russian](), by Olesia Makhnytkina, Anton Matveev, Aleksei Svischev, Polina Korobova, Dmitrii Zubok, Nikita Mamaev and Artem Tchirkovskii	**Session:** Sensor Design, Ad-hoc and Sensor Networking, Predictive Maintenance (IWPM 2020) Chairman: Giovanni Iacca Playlist:https://www.youtube.com/watch?v=MEr_vAI1fg8&list=PLKlZJpq1JqdMVFKb_yByvaHYp9rICYUat
			[Multi-Head CNN-LSTM With Prediction Error Analysis for Remaining Useful Life Prediction](), by Hyunho Mo, Federico Lucca, Jonni Malacarne and Giovanni Iacca [Available Bandwidth Guided On-Demand Distance Vector Protocol for FANETs](), by M. Aiman Al Akkad, Albert Abilov and Irina Kaisina [Sensors of Mechanical Stresses and Deformations Based on Magnetic Phenomena](), by Igor Sekirin and Vladimir Ignakhin [Time-Series Anomaly Detection Applied to Log-Based Diagnosis System Using Unsupervised Machine Learning Approach](), by Francesco Minarini and Leticia Decker
14:00	20m	Q&A in Zoom with authors of **Natural Language Processing, Speech Technologies II** session, Zoom 974-238-2704, passcode 490571	
14:20		**Session:** Artificial Intelligence, Robotics and Automation Systems Chairman: Alexey Kashevnik Playlist:https://www.youtube.com/watch?v=PLD1m4P9mHg&list=PLKlZJpq1JqdNQ-HlQCbLusjFyGA0_oQpA	
14:20	10m	[Evolutionary Optimization of Drone Trajectories Based on Optimal Reciprocal Collision Avoidance](), by Alex Bojeri and Giovanni Iacca	
14:30	20m	[Adaptive Observer of Magnetic Flux for a Nonsalient-Pole Permanent Magnet Synchronous Motor](), by Polina S. Noskova and Rami I. Al-Naim	Q&A in Zoom with authors of **Sensor Design, Ad-hoc and Sensor Networking, Predictive Maintenance (IWPM)** session, Zoom 280-192-1973, passcode 535851
14:50	10m		
			Break
15:00	40m	[AI-Based Driving Data Analysis for Behavior Recognition in Vehicle Cabin](), by Friedrich Lindow, Alexey Kashevnik, Christian Kaiser and Alexander Stocker [Recommendation of Videogames With Fuzzy Logic](), by Hugo David Calderon Vilca, Nilton Cesar Mercado Chavez and Jose Maria A. Rojas Guimarey [A Novel Genre-Specific Feature Reduction Technique Through Association Analysis](), by Adam Lefaivre and John Zhang [UAS (Drone) in Response to Coronavirus](), by Vadim Kramar	**Session:** The 1st International Workshop on the Internet of Sounds I (IWIS) Chairman: Luca Turchet Zoom ID emailed to all registered participants Playlist:https://www.youtube.com/watch?v=qS8uizxDrnE&list=PLKlZJpq1JqdOtQMdokA49UMrgnQHang4c
			Short welcome and introduction to the IWIS 2020 workshop Workshop Keynote by Maurizio Omologo [Implementing Remote Audio as a Diagnostics Tool for Maritime Autonomous Surface Ships](), by Tychonas Michailidis, Christopher Barlow, Gordon Meadow and Eshan Rajabally [Comparative Assessment of Data Augmentation for Semi-Supervised Polyphonic Sound Event Detection](), by Lionel Delphin-Poulat, Rozenn Nicol, Cyril Plapous and Katell Peron [Poster: A Comparative Study of Multilateration Methods for Single-Source Localization in Distributed Audio](), by Srđan Kitić, Clément Galutier and Grégory Pallone [Demo of Voice-Based Interface for Soundscape]()
15:40	30m	Q&A in Zoom with authors of **Artificial Intelligence, Robotics and Automation Systems**, Zoom 974-238-2704, passcode 490571	
16:10		**Session:** Big Data, Knowledge, Data Mining and Data Management Chairman: Alexey Kashevnik Playlist:https://www.youtube.com/watch?v=1ttYZtGpMwA&list=PLKlZJpq1JqdMV4UsfDM6PPHbBmWnkSGwK	

16:10	1h	Systems Development Problem-Solving as Mathematical Problems of Innovation, Digitalization, and Organization, by Alexander Geida A Survey on Hashtag Recommendations, by Kirti Jain and Rajni Jindal Logic Graphs for ALC, SHIF and SHOIN Description Logics, by Nguyen Ngoc Than and Ildar Baimuratov Solution Management for Current Temporal Aspect Using Tuple Versions, by Michal Kvet	Composition: Composing Soundscapes by Vocally Querying Online Sounds Repositories, by Alex Zanetti and Luca Turchet Demo of Real-Time Sound Event Detection on the Edge, by Gianmarco Cerutti, Alessio Brutti and Elisabetta Farella Demo of [°poly°] - A Distributed and Interactive Sound Installation Based on Tangible Autonomous Agents, by Benjamin Matuszewski
17:10	20m	Q&A in Zoom with authors of **Big Data, Knowledge, Data Mining and Data Management**, Zoom 974-238-2704, passcode 490571	**Break**
17:30	20m	Pecha Kucha pitches for posters and demos followed by show of demos and posters; Playlist: https://www.youtube.com/watch?v=KlbzN1XcemE&list=PLKlZJpq1JqdN5PUiuUeJjJL95mGA8nrDQ	
17:50	40m	The conference meetup in Zoom: discussion on demos and any other topics, Zoom 280-192-1973, passcode 535851	

September 8 (Tuesday)
University of Trento, Trento, Italy / Online participation by Youtube + Zoom
NOTE: Conference time is in Central European Summer Time (CEST, UTC+2) as conference is held in Trento, Italy

09:30	1h	Keynote talk: The Internet of Things: current state and future evolutions, by Carlo Fischione, KTH Royal Institute of Technology, Sweden Zoom ID emailed to all registered participants	
10:30		**Session:** Software Design and Innovative Applications I Chairman: Dmitry Korzun Playlist:https://www.youtube.com/watch?v=784JpOviQJo&list=PLKlZJpq1JqdO3cRgZ3Q3l0IdIOE4ZGZtZ	**Session:** The 1st International Workshop on the Internet of Sounds II (IWIS) Chairman: Luca Turchet Zoom ID emailed to all registered participants Playlist:https://www.youtube.com/watch?v=ZNr_NzZ8nEg&list=PLKlZJpq1JqdPiLSAj1oWNcSi5zmyqPmNj
10:30	1h	Computer Vision System to Track Moving Objects With Unknown Periodic Moving Patterns Based on DREM Algorithm, by Ali Shakkouf and Vladislav Gromov An Interactive Low-Cost Smart Assistant System: Information Kiosk as Plug & Play Device, by Asm Mehedi Hasan Sad, Md Mashrur Sakib Choyon, Abu Hasnat Md Rhydwan and Chowdhury Akram Hossain Privacy Analysis of Voice User Interfaces, by Farida Yeasmin, Sneha Das and Tom Backstrom How Smart Is Your Tourism? Designing a Maturity Model for Lesser-Known Mountain Resorts, by Emmanuel Fragniere, Dominique Fumeaux, Michael Fux, Sandra Grezes and Alain Imboden	Towards a 5G Communication Architecture for the Internet of Musical Things, by Marco Centenaro, Paolo Casari and Luca Turchet A Deep Learning Approach for Low-Latency Packet Loss Concealment of Audio Signals in Networked Music Performance Applications, by Prateek Verma, Alessandro Ilic Mezza, Chris Chafe and Cristina Rottondi An Adaptive Metronome Technique for Mitigating the Impact of Latency in Networked Music Performances, by Riccardo Battello, Luca Comanducci, Fabio Antonacci, Augusto Sarti, Stefano Delle Monache, Giovanni Cospito, Enrico Pietrocola and Filippo Berbenni Transparent Communication within Multiplicities, by Angelo Fraietta, Oliver Bown and Sam Ferguson Impact of Source Panning on a Global
11:30	20m	Q&A in Zoom with authors of **Software Design and Innovative Applications I** session, Zoom 974-238-2704, passcode 490571	

11:50		**Session:** Software Design and Innovative Applications II Chairman: Nikolay Teslya Playlist:https://www.youtube.com/watch?v=lGQfARP4kYk&list=PLKlZJpq1JqdPQF8Iojwf4hjIHsroa7M6D	[Metronome in Rhythmic Networked Music Performance](), by Robert Hupke, Andrea Genovese, Sripathi Sridhar, Agnieszka Roginska and Juergen Peissig
11:50	75m	[Human-Machine Collective Intelligence Environment for Decision Support: Conceptual and Technological Design](), by Alexander Smirnov and Andrew Ponomarev [Proposing Game Concepts and Design Recommendations for Minority Language Learning: Karelian Language](), by Petri Tanskanen and Leena Arhippainen [Intelligent Decision Support Based on User Digital Life Model: Principles and Conceptual Framework](), by Alexander Smirnov and Tatiana Levashova [Smart Human-Computer Service Interface in Industrial Monitoring Services](), by Vyacheslav Dimitrov, Elena Filippova and Dmitry Korzun [Smart Spaces Middleware: A Requirement-Oriented Overview](), by Sergey Marchenkov and Dmitry Korzun	[Towards Real-Time Detection of Symbolic Musical Patterns: Probabilistic vs. Deterministic Methods](), by Nishal Silva, Carlo Fischione and Luca Turchet [Poster: The Musical Interactivity Area - An Attempt to Map the Intersection between Composition and Instrument Through the Use of the Gestrument Engine](), by Jesper Nordin [Poster: Populating the Smart Musical Instruments Ontology with Data](), by Luca Turchet, Guixia Zhu and Paolo Bouquet [Demo of the timbreID-VST Plugin for Embedded Real-Time Classification of Individual Musical Instruments Timbres](), by Domenico Stefani and Luca Turchet
13:05	25m	[Q&A in Zoom with authors of **Software Design and Innovative Applications II** session](), Zoom 974-238-2704, passcode 490571	**Lunch break**
13:30	1h	**Lunch break**	
14:30		**Session:** e-Health and Wellbeing Chairman: Oleg Medvedev Playlist:https://www.youtube.com/watch?v=ArRhZvN83ME&list=PLKlZJpq1JqdNHy_BpPNFVvaoCeqdIrIYw	**Session:** The 1st International Workshop on the Internet of Sounds III (IWIS) Chairman: Luca Turchet Zoom ID emailed to all registered participants
14:30	1h	[Facial Emotional Expression Assessment in Parkinson's Disease by Automated Algorithm Based on Action Units](), by Anastasia Moshkova, Andrey Samorodov, Natalia Voinova, Alexander Volkov, Ekaterina Ivanova and Ekaterina Fedotova [Comparative Analysis of Face ROI Outline Algorithms for Contactless Heart Rate Measurement Under Different Registration Conditions](), by Ivan Semchuk, Konstantin Zlobin, Natalia Muravskaya and Andrey Samorodov [Reducing of Bioimpedance Influence on ECG by Correction Filter in Mobile Heart Monitoring System](), by Maxim Safronov, Andrey Kuzmin, Oleg Bodin, Viktor Baranov, Olga Timokhina and Oleg Cheban [Problem of Cybersecurity in Context of Medical Information System Register of Palliative Patients](), by Gennady Sigovtsev, Marina Charuta and Ekaterina Menshikova	Book presentation "Ubiquitous Music Ecologies", by Victor Lazzarini Aloha: Elk's system for low-latency networked music performances, by Stefano Zambon Announcement of Best paper, best student paper, best demo awards of IWIS 2020 Concluding remarks and announcements for the next edition of IWIS
15:30	20m	[Q&A in Zoom with authors of **e-Health and Wellbeing** session](), Zoom 974-238-2704, passcode 490571	**Break**
15:50	10m	[**Official closing of the 27th FRUCT conference**](), Zoom 280-192-1973, passcode 535851	

Demos/Posters Session of the 27th FRUCT Conference

The first part of the Demos/Posters section is a promotional section to present/introduce demo projects to the public. Presentations will be done as 2 minutes videos on Youtube in the Pecha Kucha style. The second part of the session will be held in form of open discussion held by Zoom teleconference.

This time the Demo and Posters section is organized in cooperation with Future Internet Journal (ISSN 1999-5903). All conference participants are warmly welcome to take part in voting for the best demo/poster of the 27th IEEE FRUCT conference by giving your "Like" for the demos you like the most. One person can vote for as many demos as he/she liked. 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/demo27.

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/Posters (*preliminary list based on submissions by September 1, 2020*)

1. *Demo:* **An Interactive Low-Cost Smart Assistant System: Information Kiosk as Plug & Play Device**, by Asm Mehedi Hasan Sad, Md Mashrur Sakib Choyon, Abu Hasnat Md Rhydwan and Chowdhury Akram Hossain*, American International University-Bangladesh*
This demo presents state-of-the-art information kiosk that can mitigate the information collection issues in different organizations worldwide. Unlike the existing kiosk, this device uses machine learning-based image processing to detect humans and suggest relevant information within the shortest possible time. A kernel-based operating system has also been developed for this kiosk which offers a clean and polished UI for easier user integration. This kiosk is a plug and play device, which means any organization can easily expand its feature without installing any additional software. Currently, it offers features like 3D navigation, people search, automated email sending.

2. *Demo:* **Short-Term Defect Vibrodiagnostics in a Production Machinery Unit Based on Neural Network Analysis**, by Vsevolod Averkov, Daria Madrakhimova, Daria Gorbunova, Kirill Kulakov and Dmitry Korzun*, Petrozavodsk State University*
The use of machine learning in industry will increase the productivity of the technological process by selecting the optimal operating modes of the machine, etc. And understand faster when you need technological maintenance and repair of expensive production equipment, avoiding serious consequences.
The essence of the solution is to use recurrent neural networks to detect breakdowns, you can also use convolutional neural networks to detect them.

3. *Demo:* **Smart Assistance Video Monitoring Services in Industrial Systems**, by Nikita Bazhenov, Artur Harkovchuk, Vsevolod Averkov and Sergey Marchenkov*, Petrozavodsk State University*
The current demonstration shows a pilot implementation of the smart assistance video monitoring services in manufacturing processes based on simultaneous video data analysis from multiple video cameras. The service is designed to monitor the workplace of production (production) equipment using surveillance cameras. Video analysis based on monitoring mechanical components of equipment to detect deviations in machine operations, operator presence in the area to control production processes, screen image text analysis from CNC display monitor to detect errors.

4. *Demo:* **Human Activity Analysis using Pose Recognition**, by Egor Rybin and Nikita Bazhenov*, Petrozavodsk State University*
This work devotes to developing video processing service for human action recognition to be used in video surveillance application for monitoring working for personal and staff. Demo presented with the current state of the system and showcase how it process images and video stream.

5. *Demo:* **Visual Digital Diagnostics of Production Machinery Online**, by Nikita Harzia, Nikita Besedniy, Elena Filippova, Vyacheslav Dimitrov and Dmitry Korzun*, Petrozavodsk State University*
The demo is part of a system for multi-parameter monitoring of production machinery (technical state, operating conditions, personnel actions). Multiple sensors are mounted around an equipment unit to measure such physical parameters as temperature, rotation frequency, current strength, and vibration. The data from sensors are converted into digital form and transferred it to a local server in continuous mode. The server runs an appropriate data processor (program module) for each sensor and analyzes the data flow using the original signal and its frequency spectrum (obtained by the fast Fourier transform algorithm). As a result of the analysis, envelope spectrum of the signal is accumulated for a certain time period. Spectrogram is plotted as a graph of the dependence of the amplitude (color) on frequency and time. The resulting spectrogram image is processed by the defect detection module to anomalies of the given equipment unit using neural network methods.

6. *Demo presented at IWIS workshop:* **[°poly°] - A Distributed and Interactive Sound Installation Based on Tangible Autonomous Agents**, by Benjamin Matuszewski*, Ircam STMS UMR 9912 CNRS*

7. *Demo presented at IWIS workshop:* **Voice-based interface for soundscape composition: composing soundscapes by vocally querying online sounds repositories**, by Alex Zanetti and Luca Turchet*, University of Trento*

8. *Demo presented at IWIS workshop:* **TimbreID-VST plugin for embedded real-time classification of individual musical instruments timbres**, by Domenico Stefani and Luca Turchet*, University of Trento*

9. *Demo presented at IWIS workshop:* **Real-Time Sound Event Detection on the Edge**, by Gianmarco Cerutti, Alessio Brutti and Elisabetta Farella*, FBK*

10. *Poster presented at IWIS workshop:* **The Musical Interactivity Area - An Attempt to Map the Intersection between Composition and Instrument Through the Use of the Gestrument Engine**, by Jesper Nordin*, LTU*

11. *Poster presented at IWIS workshop:* **Populating the Smart Musical Instruments Ontology with Data**, by Luca Turchet, Guixia Zhu and Paolo Bouquet*, University of Trento*

The 1st International Workshop on the Internet of Sounds (IWIS 2020)

The Internet of Sounds is an emerging research field positioned at the intersection of the Internet of Things and Sound and Music Computing domains. The aim of the workshop is to bring together academics and industry to investigate and advance the development of Internet of Sounds technologies by using cutting-edge tools and processes. The topics of interest include, but are not limited to, the following areas:
- Wireless acoustic sensor networks
- Detection and classification of sounds in acoustic sensor networks
- Visualization and Sonification of acoustic sensor networks
- Ecoacoustics
- Privacy and security in acoustic sensor networks
- Smart Musical Instruments
- Musical haptics for the Internet of Musical Things
- Participatory live music performances
- Networked music performances
- Music education applications for the Internet of Musical Things
- Intelligent music production in Internet of Musical Things contexts
- Ubiquitous music
- Web Audio for the Internet of Sounds
- Spatial audio for the Internet of Sounds
- Sonification for Internet of Sounds applications
- Protocols and exchange formats for the Internet of Sounds
- Improving accessibility and inclusiveness within the Internet of Sounds
- Open audio databases for Deep Learning and Data Mining
- Challenges in the management and delivery of large audio databases
- Visualization, access and indexing of audio databases
- Cloud-based services for musical and audio applications

Program

7th September
- 9:30 – 10:30: Keynote of Prof. Fausto Giunchiglia

Session "Internet of Audio Things"
- 15:00: Welcome to IWIS 2020 (Chairman: Luca Turchet)

- 15:05 – 16:00: Keynote of Dr. Maurizio Omologo: "On self-synchronization of distributed microphone networks"

- Full papers (session chair: Mathieu Lagrange)
  - 16:00 – 16:20: "Implementing Remote Audio as a Diagnostics Tool for Maritime Autonomous Surface Ships" by Tychonas Michailidis, Christopher Barlow, Gordon Meadow, Eshan Rajabally, https://youtu.be/qS8uizxDrnE
  - 16:20 – 16:40: "Comparative Assessment of Data Augmentation for Semi-Supervised Polyphonic Sound Event Detection" by Lionel Delphin-Poulat, Rozenn Nicol, Cyril Plapous, Katell Peron, https://youtu.be/ahnvS_Bqa-U

- Posters (session chair: Mathieu Lagrange)
  - 16:40 – 16:50: "A Comparative Study of Multilateration Methods for Single-Source Localization in Distributed Audio" by Sran Kitic, Clement Galutier, Gregory Pallone, https://youtu.be/VbCLAhWJpGI

- Demo (session chair: Balandino di Donato)
  - 16:50 – 17:00: "Demo of Voice-Based Interface for Soundscape Composition: Composing Soundscapes by Vocally Querying Online Sounds Repositories" by Alex Zanetti, Luca Turchet, https://youtu.be/qEIV8xPZMSc
  - 17:00 – 17:10: "Demo of Real-Time Sound Event Detection on the Edge" by Gianmarco Cerutti, Alessio Brutti, Elisabetta Farella , https://youtu.be/ZAkA3lv_SSs
  - 17:10 – 17:20: "[°poly°] - A Distributed and Interactive Sound Installation Based on Tangible Autonomous Agents" by Benjamin Matuszewski, https://youtu.be/jMgOX2xJywc

8th September
o 9:30 – 10:30: Keynote of Prof. Carlo Fischione

Session "Internet of Musical Things"
- 9:30 – 10:30: Keynote of Prof. Carlo Fischione: "The Internet of Things: current state and future evolutions"

- Full papers (session chair: Leonardo Gabrielli)
  - 10:30 – 10:50: "Towards a 5G Communication Architecture for the Internet of Musical Things" by Marco Centenaro, Paolo Casari, Luca Turchet, https://youtu.be/ZNr_NzZ8nEg
  - 10:50 – 11:10: "A Deep Learning Approach for Low-Latency Packet Loss Concealment of Audio Signals in Networked Music Performance Applications" by Prateek Verma, Alessandro Ilic Mezza, Chris Chafe, Cristina Rottondi, https://youtu.be/xumPC6FCoaU
  - 11:10 – 11:30: "An Adaptive Metronome Technique for Mitigating the Impact of Latency in Networked Music Performances" by Riccardo Battello, Luca Comanducci, Fabio Antonacci, Augusto Sarti, Stefano Delle Monache, Giovanni Cospito, Enrico Pietrocola, Filippo Berbenni, https://youtu.be/SWPBFTkhfgs
  - 11:30 – 11:50: "Transparent Communication Within Multiplicities" by Angelo Fraietta, Oliver Bown, Sam Ferguson, https://youtu.be/-kGsAikYgZI
  - 11:50 – 12:10: "Impact of Source Panning on a Global Metronome in Rhythmic Networked Music Performance" by Robert Hupke, Andrea Genovese, Sripathi Sridhar, Agnieszka Roginska, Juergen Peissig, https://youtu.be/4A1kUo7H6E8
  - 12:10 – 12:30: "Towards Real-Time Detection of Symbolic Musical Patterns: Probabilistic vs. Deterministic Methods" by Nishal Silva, Carlo Fischione, Luca Turchet, https://youtu.be/BlC_E1ZWmXs

- Posters (session chair: Anna Xambó)
  - 12:30 – 12:40: "The Musical Interactivity Area - An Attempt to Map the Intersection Between Composition and Instrument Through the Use of the Gestrument Engine" by Jesper Nordin, https://youtu.be/I2_38PnjPPM
  - 12:40 – 12:50: "Populating the Smart Musical Instruments Ontology With Data" by Luca Turchet, Guixia Zhu, Paolo Bouquet, https://youtu.be/Z-CDpB4ouCg

- Demo (session chair: Anna Xambó)
  - 12:50 – 13:00: "Demo of the timbreID-VST Plugin for Embedded Real-Time Classification of Individual Musical Instruments Timbres" by Domenico Stefani, Luca Turchet, https://youtu.be/IlqpRUxrVkY

Session "Books and Products" (session chair: Luca Turchet)
- 15:00 – 15:10: Book presentation "Ubiquitous Music Ecologies" by Prof. Victor Lazzarini
- 15:10 – 15:20: "Aloha: Elk's system for low-latency networked music performances", by Stefano Zambon

Session "Awards and closing" (session chair: Luca Turchet)
- 15:20 – 15:30: Announcement of Best paper, best student paper, best demo awards
- 15:30 – 15:45: Concluding remarks and announcements for the next edition of IWIS

FOR NOTES

The 27th IEEE Conference of Open Innovations Association FRUCT

Program

Trento, Italy
7-9 September 2020

A special word of thanks goes to the

Department of Information Engineering and Computer Science of University of Trento, IEEE ComSoc, Future Internet Journal and Applied Sciences Journal for sponsoring the conference

CALL FOR PARTICIPATION
28th IEEE Conference of Open Innovations Association FRUCT

Moscow, Russia, 25-29 January 2021

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 150+ participants representing over 30 member organizations and guests from whole world, e.g., Russia, Finland, Italy, UK, Denmark, India, Brazil, etc.. The average **acceptance rate is 40%**. A lot of industrial players traditionally take part in the conference, including, 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. We welcome everybody to submit papers and take part in the conference, present your research results and join activities of the FRUCT Association. Due to COVID-19 situation the 28th IEEE FRUCT conference **allows both onsite and distant participation**.

Traditionally the conference offers low registration fee. FRUCT doesn't offer deadline extension, but **we offer Early-bird submission** option. **NOTE** that the main conference program is scheduled for **We-Fr (Jan 27-29, 2021)**, as first two days are reserved for FRUCT work groups meetings and technology trainings, which require separate registration and/or invitation. For further details please refer to http://www.fruct.org/cfp28.

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 full pages, max 12 pages)   **OR**   2. **Short paper** (min 2 pages, max 6 pages)

   Submission deadline: 20 November 2020   Early-bird deadline: 30 October 2020

   Notification of acceptance: **14 December 2021**   Camera-ready deadline: **21 December 2020**

3. **Poster / Demo proposal:** submission deadline: **15 January 2021**

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). The accepted Full Papers will be included to **IEEE Xplore** and **DOAJ,** indexed by **Scopus**, **ACM, Web of Science, RSCI/РИНЦ** (as journal publication), **DBLP**, etc. The selected papers get invitations to publish extended papers in partner journals, e.g., **IJERTCS**. The Full Papers are in **Scimago Journal Rank** (SJR) http://scimagojr.com/journalsearch.php?q=21100305223&tip=sid. FRUCT is **rated by many systems**, e.g., **Finnish (JUFO=1**, ID: 72707**), Norwegian** (NSD=1), **Danish** (BFI=1, ID: 8782540).

Contacts

Paper templates, conference news and other relevant details are available at http://www.fruct.org/conference28. If you get some questions that are not covered at the conference web page, feel free to send email to info@fruct.org.