18th International Conference on Speech and Computer SPECOM 2016
1st International Conference on Interactive Collaborative Robotics ICR 2016

23-27 August, 2016, Budapest, Hungary

Conference Program

Tuesday,	**August, 23th**
16:00-18:00	Registration
18:30-20:00	Welcome Reception
Wednesday,	**August, 24h**
08:00-08:30	Registration
08:30-09:00	Opening ceremony
09:00-10:00	Keynote lecture of Ralf Schlueter
10:00-10:30	Coffee break
10:30-12:30	Speech recognition and understanding
12:30-14:00	Lunch
14:00-16:00	SPECOM Poster session I
16:00-16:30	Coffee break
16:30-18:30	Speech synthesis
Thursday,	**August, 25th**
09:00-10:00	Keynote lecture of Attila Vékony
10:00-10:30	Coffee break
10:30-12:30	Multimodal human-machine interaction
12:30-14:00	Lunch
14:00-16:00	ICR Poster session
16:00-16:30	Coffee break
16:30-18:30	Interactive collaborative robotics
16:30-18:30	Speech signal processing
19:30-21:30	Gala dinner on the Danube
Friday,	**August, 26th**
09:00-10:00	Keynote lecture of Nick Campbell
10:00-10:30	Coffee break
10:30-12:30	Natural language processing
12:30-14:00	Lunch
14:00-16:00	SPECOM Poster session II
16:00-16:30	Coffee break
16:30-18:30	Speaker and language recognition
Saturday,	**August, 27th**
09:00-15:00	Budapest tour

	Tuesday, August, 23th
16:00-18:00	**Registration**
18:30-20:00	**Welcome Reception**
	Wednesday, August, 24th
08:00-08:30	**Registration**
08:30-09:00	**Opening ceremony**
9:00-10:00	**Keynote speech: Automatic Speech Recognition based on Neural Networks** ***Ralf Schlueter,* RWTH Aachen University, Germany** *Chair: Géza Németh, Budapest University of Technology and Economics, Hungary*
10:00-10:30	**Coffee break**
10:30-12:30	**Speech recognition and understanding** *Chair: Alexey Karpov, SPIIRAS, Russia*
10:30-10:50	Adaptation of DNN Acoustic Models using KL-divergence Regularization and Multi-Task Training *Lászlo Tóth and Gábor Gosztolya*
10:50-11:10	Improving Automatic Speech Recognition Containing Additive Noise Using Deep Denoising Autoencoders of LSTM Networks *Marvin Coto, John Goddard and Fabiola Martinez*
11:10-11:30	Knowledge Transfer for Utterance Classification in Low-Resource Languages *Andrei Smirnov and Valentin Mendelev*
11:30-11:50	Designing Syllable Models for an HMM based Speech Recognition System *Kseniya Proenca, Kris Demuynck and Dirk Van Compernolle*
11:50-12:10	In-document Adaptation for a Human Guided Automatic Transcription Service *André Mansikkaniemi, Mikko Kurimo and Krister Lindén*
12:10-12:30	Automatic Summarization of Highly Spontaneous Speech *András Beke and György Szaszák*
12:30-14:00	**Lunch**
14:00-16:00	**SPECOM Poster session I** *Chair: Ralf Schlueter, RWTH Aachen University, Germany*
	P1: Exploring GMM-derived Features for Unsupervised Adaptation of Deep Neural Network Acoustic Models *Natalia Tomashenko, Yuri Khokhlov, Anthony Larcher and Yannick Estève* P2: DNN-based Acoustic Modeling for Russian Speech Recognition Using Kaldi *Irina Kipyatkova and Alexey Karpov* P3: Improving the Quality of Automatic Speech Recognition in Trucks *Maxim Korenevsky, Ivan Medennikov and Vadim Shchemelinin* P4: Feature Space VTS with Phase Term Modeling *Maxim Korenevsky and Aleksei Romanenko* P5: LSTM-based Language Models for Spontaneous Speech Recognition *Ivan Medennikov and Anna Bulusheva* P6: Speaker-dependent bottleneck features for Egyptian Arabic speech recognition *Aleksei Romanenko and Valentin Mendelev* P7: Advances in STC Russian Spontaneous Speech Recognition System *Ivan Medennikov and Alexey Prudnikov* P8: Combining Atom Decomposition of the F0 Track and HMM-based Phonological Phrase Modelling for Robust Stress Detection in Speech *György Szaszák, Máté Ákos Tündik, Branislav Gerazov and Aleksandar Gjoreski* P9: Improving Recognition of Dysarthric Speech Using Severity Based Tempo Adaptation *Chitralekha Bhat, Bhavik Vachhani and Sunil Kumar Kopparapu* P10: Comparison of Retrieval Approaches and Blind Relevance Feedback Methods within the Czech Speech Information Retrieval *Lucie Skorkovska* P11: A Phonetic Segmentation Procedure Based on Hidden Markov Models *Edvin Pakoci, Branislav Popović, Nikša Jakovljević, Darko Pekar and Fathy Yassa* P12: Stress, arousal, and stress detector trained on acted speech database *Róbert Sabo, Milan Rusko, Andrej Ridzik and Jakub Rajčani* P13: Improvements to Prosodic Variation in Long Short-Term Memory based Intonation Models Using Random Forest *Bálint Pál Tóth, Balázs Szórádi and Géza Németh* P14: Fusing various audio feature sets for detection of Parkinson's disease from sustained voice and speech recordings *Evaldas Vaiciukynas, Antanas Verikas, Adas Gelzinis, Marija Bacauskiene, Kestutis Vaskevicius, Virgilijus Uloza, Evaldas Padervinskis and Jolita Ciceliene*

	P15: Investigation of Speech Signal Parameters Reflecting the Truth of Transmitted Information *Victor Budkov, Irina Vatamaniuk, Vladimir Basov and Daniyar Volf* P16: Trade-off between speed and accuracy for Noise Variance Minimization (NVM) pitch estimation algorithm *Andrey Barabanov and Aleksandr Melnikov* P17: Study on the improvement of intelligibility for elderly speech using formant frequency shift method *Yuto Tanaka, Mitsunori Mizumachi and Yoshihisa Nakatoh* P18: Quality Assessment of two Fullband Audio Codecs Supporting Real-Time Communication *Michael Maruschke, Oliver Jokisch, Martin Meszaros, Franziska Trojahn and Mario Hoffmann* P19: A Deep Neural Networks (DNN) Based models for a Computer Aided Pronunciation Learning System (in absentia) *Mohamed Elaraby, Mustafa Abdallah, Sherif Abdou and Mohsen Rashwan* P20: Evaluation of Response Times on a Touch Screen using Stereo Panned Speech Command Auditory Feedback *Hunor Nagy and György Wersényi* P21: Speech Enhancement with Microphone Array Using a Multi Beam Adaptive Noise Suppressor *Mikhail Stolbov and Alexander Lavrentyev* P22: Microphone Array Directivity Improvement in Low-Frequency Domain for Speech Processing *Sergei Aleinik and Mikhail Stolbov* P23: Optimization of Zelinski post-filtering calculation *Sergei Aleinik* P24: Assessment of the relation between low-frequency features and velum opening by using real articulatory data *Alexander Sepulveda-Sepulveda and German Castellanos-Dominguez* P25: Evaluation of the speech quality during rehabilitation after surgical treatment of the cancer of oral cavity and oropharynx based on a comparison of the Fourier spectra *Evgeny Kostyuchenko, Roman Mescheryakov, Dariya Ignatieva, Alexander Pyatkov, Evgeny Choynzonov and Lidiya Batatskaya*
16:00-16:30	**Coffee break**
16:30-18:30	**Speech synthesis** *Chair: Géza Németh, Budapest University of Technology and Economics, Hungary*
16:30-16:50	Ensemble Deep Neural Network based Waveform-Driven Stress Model for Speech Synthesis *Bálint Pál Tóth, Kornél István Kiss, György Szaszák and Géza Németh*
16:50-17:10	DNN-Based Duration Modeling for Synthesizing Short Sentences *Péter Nagy and Géza Németh*
17:10-17:30	Experiments with One-Class Classifier as a Predictor of Spectral Discontinuities in Unit Concatenation *Daniel Tihelka, Martin Grůber and Markéta Jůzová*
17:30-17:50	Phonetic Aspects of High Level of Naturalness in Speech Synthesis *Vera Evdokimova, Pavel Skrelin, Andrey Barabanov and Karina Evgrafova*
17:50-18:10	An agonist-antagonist pitch production model *Branislav Gerazov and Philip N. Garner*
18:10-18:30	An UMP (Universal Melodic Portraits) Model of Pitch Contours Stylization for Analysis and Synthesis of Intonation *Boris Lobanov*
	Thursday, August, 25th
9:00-10:00	**Keynote speech: Speech Recognition Challenges in the Car Navigation Industry** ***Attila Vékony*, NNG Software Developing and Commercial Llc. Hungary** *Chair: Andrey Ronzhin, SPIIRAS, Russia*
10:00-10:30	**Coffee break**
10:30-12:30	**Multimodal human-machine interaction** *Chair: Milos Zelezny, University of West Bohemia, Czech Republic*
10:30-10:50	Toward Sign Language Motion Capture Dataset Building *Zdeněk Krňoul, Pavel Jedlička, Jakub Kanis and Milos Zelezny*
10:50-11:10	Selecting Keypoint Detector and Descriptor Combination for Augmented Reality Application *Lukáš Bureš and Luděk Müller*
11:10-11:30	Human-Robot Interaction using Brain-Computer Interface *Lev Stankevich and Konstantin Sonkin*
11:30-11:50	Attention Training Game with Aldebaran Robotics NAO and Brain-Computer Interface *Evgeny Shandarov, Stepan Gomilko and Alina Zimina*
11:50-12:10	HAVRUS Corpus: High-speed Recordings of Audio-Visual Russian Speech *Vasilisa Verkhodanova, Alexander Ronzhin, Irina Kipyatkova, Denis Ivanko, Alexey Karpov and Milos Zelezny*

12:10-12:30	Speech Recognition combining MFCCs and Image Features (Skype) *Stamatis Karlos, Nikos Fazakis, Katerina Karanikola, Sotiris Kotsiantis and Kyriakos Sgarbas*
12:30-14:00	**Lunch**
14:00-16:00	**ICR Poster session** *Chair: Eugene Larkin, Tula State University, Russia*
	P1: Decentralized Approach to Control of Robot Groups During Execution of the Task Flow *Igor Kalyaev, Anatoly Kalyaev and Iakov Korovin* P2: A Recovery Method for the Robotic Decentralized Control System with Performance Redundancy *Iakov Korovin, Eduard Melnik and Anna Klimenko* P3: Control Algorithms for Heterogeneous Vehicle Groups Control in Obstructed 2-D Environments *Viacheslav Pshikhopov, Mikhail Medvedev, Anatoly Gaiduk and Aleksandr Kolesnikov* P4: Method of Spheres for Solving 3D Formation Task in a Group of Quadrotors *Donat Ivanov, Sergey Kapustyan and Igor Kalyaev* P5: Multi-Robot Exploration and Mapping Based on the Subdefinite Models *Valery Karpov, Alexander Migalev, Anton Moscowsky, Maxim Rovbo and Vitaly Vorobiev* P6: Simulation of Commands Execution by Mobile Robot *Eugene Larkin, Alexey Ivutin, Vladislav Kotov and Alexander Privalov* P7: The Effectiveness of Rescuing Casualties when Using Robotic Systems *Anna Motienko, Igor Dorozhko, Anatoly Tarasov and Oleg Basov* P8: Distributed Information System for Collaborative Robots and IoT Devices *Siarhei Herasiuta, Uladzislau Sychou and Ryhor Prakapovich* P9: Positioning Method Basing on External Reference Points for Surgical Robots *Ekaterina Sinyavskaya, Elena Shestova, Mikhail Medvedev and Evgenij Kosenko* P10: Hardware-Software Solution for Three-Dimensional Model Control in Volumetric Display Testing Unit for Visualization and Dispatching Applications *Alexander Bolshakov, Arthur Sgibnev, Tatiana Chistyakova, Viktor Glazkov and Dmitry Lachugin* P11: Educational Marine Robotics in SMTU *Mikhail Chemodanov, Ryzhov Vladimir, Nickolay Semenov, Kirill Rozhdestvensky and Igor Kozhemyakin* P12: Designing Simulation Model of Humanoid Robot to Study Servo Control System *Alexander Denisov, Viktor Budkov and Daniil Mikhalchenko* P13: Speech Dialog as a Part of Interactive "Human-Machine" Systems *Rodmonga Potapova* P14: Human-Machine Speech-Based Interfaces with Augmented Reality and Interactive Systems for Controlling Mobile Cranes *Maciej J. Majewski and Wojciech Kacalak* P15: Preprocessing Data for Facial Gestures Classifier on the Basis of the Neural Network Analysis of Biopotentials Muscle Signals *Raisa Budko and Irina Starchenko* P16: Mimic Recognition and Reproduction in Bilateral Human-Robot Speech Communication *Arkady S. Yuschenko, Sergey Vorotnikov, Dmitry Konyshev and Andrey Zhonin* P17: Interactive Collaborative Robotics and Natural Language Interface Based on Multi-Agent Recursive Cognitive Architectures *Murat Anchokov, Zalimkhan Nagoev, Vladimir Denisenko, Boris Tazhev and Zaurbek Sundukov* P18: An Analysis of Visual Faces Datasets *Ivan Gruber, Miroslav Hlaváč, Marek Hrúz, Miloš Železný and Alexey Karpov* P19: Voice Dialogue with a Collaborative Robot Driven by Multimodal Semantics *Alexander Kharlamov and Konstantin Ermishin* P20: Human-Smartphone Interaction for Dangerous Situation Detection & Recommendation Generation while Driving *Alexander Smirnov, Alexey Kashevnik and Igor Lashkov* P21: Conceptual Model of Cyberphysical Environment Based on Collaborative Work of Distributed Means and Mobile Robots *Anton Saveliev, Oleg Basov and Andrey Ronzhin* P22: The Humanoid Robot Assistant for a Preschool Children *Evgeny Shandarov, Alina Zimina, Dmitry Rimer, Evgenia Sokolova and Olga Shandarova*
16:00-16:30	**Coffee break**
16:30-18:30	**Interactive collaborative robotics** *Chair: Roman Meshcheryakov, TUSUR, Russia*
16:30-16:50	Development of Wireless Charging Robot for Indoor Environment based on Probabilistic Roadmap *Yi-Shiun Wu, Chi-Wei Chen and Hooman Samani*
16:50-17:10	Mechanical Leg Design of the Anthropomorphic Robot Antares *Nikita Pavluk, Victor Budkov, Andrey Kodyakov and Andrey Ronzhin*

17:10-17:30	YuMi, come and play with me! A Collaborative Robot for piecing together a Tangram Puzzle *David Kirschner, Rosemarie Velik, Saeed Yahyanejad, Mathias Brandstötter and Michael Hofbaur*
17:30-17:50	A Control Strategy for a Lower Limb Exoskeleton with a Toe Joint *Sergei Savin, Sergey Jatsun and Andrey Yatsun*
17:50-18:10	Robot Soccer Team for RoboCup Humanoid KidSize League *Evgeny Shandarov, Stepan Gomilko, Darya Zhulaeva, Dmitry Rimer, Dmitry Yakushin and Roman Meshcheryakov*
18:10-18:30	Smart M3-Based Robot Interaction Scenario for Coalition Work *Alexander Smirnov, Alexey Kashevnik, Sergey Mikhailov, Mikhail Mironov and Mikhail Petrov*
16:30-18:30	**Speech signal processing** *Chair: László Tóth, University of Szeged*
16:30-16:50	Robust Speech Analysis Based on Source-Filter Model Using Multivariate Empirical Mode Decomposition in Noisy Environments *Surasak Boonkla, Masashi Unoki and Stanislav S. Makhanov*
16:50-17:10	An Algorithm for Phase Manipulation in a Speech Signal *Darko Pekar, Siniša Suzić, Robert Mak, Meir Friedlander and Milan Sečujski*
17:10-17:30	Detecting Laughter and Filler Events by Time Series Smoothing with Genetic Algorithms *Gábor Gosztolya*
17:30-17:50	Bio-Inspired Sparse Representation of Speech and Audio Using Psychoacoustic Adaptive Matching Pursuit *Alexey Petrovsky, Vadzim Herasimovich and Alexander Petrovsky*
17:50-18:10	Statistical analysis of acoustical parameters in the voice of children with juvenile dysphonia *Miklós Gábriel Tulics, Ferenc Kazinczi and Klára Vicsi*
18:10-18:30	Precise estimation of harmonic parameter trend and modification of a speech signal *Andrey Barabanov, Evgenij Vikulov and Valentin Magerkin*
19:30-21:30	**Gala dinner on the Danube**
	Friday, August, 26th
09:00-10:00	**Keynote speech: Machine Processing of Dialogue States; Speculations on Conversational Entropy** ***Nick Campbell*, Trinity College Dublin, Ireland** *Chair: Rodmonga Potapova, MSLU, Russia*
10:00-10:30	**Coffee break**
10:30-12:30	**Natural language processing** *Chair: Rodmonga Potapova, MSLU, Russia*
10:30-10:50	Text Classification in the Domain of Applied Linguistics as Part of a Pre-editing Module for Machine Translation Systems *Ksenia Oskina*
10:50-11:10	Backchanneling via Twitter Data for Conversational Dialogue Systems *Michimasa Inaba and Kenichi Takahasi*
11:10-11:30	Measuring prosodic entrainment in Italian collaborative game-based dialogues *Michelina Savino, Loredana Lapertosa, Alessandro Caffò and Mario Refice*
11:30-11:50	A Preliminary Exploration of Group Social Engagement Level Recognition in Multiparty Casual Conversation *Yuyun Huang, Emer Gilmartin, Benjamin R. Cowan and Nick Campbell*
11:50-12:10	Interaction Quality as a Human-Human Task-Oriented Conversation Performance *Anastasiia Spirina, Olesia Vaskovskaia, Maxim Sidorov and Alexander Schmitt*
12:10-12:30	A comparison of acoustic features of speech of typically developing children and children with autism spectrum disorders *Elena Lyakso, Olga Frolova and Aleksey Grigorev*
12:30-14:00	**Lunch**
14:00-16:00	**SPECOM Poster session II** *Chair: Nick Campbell, Trinity College Dublin, Ireland*
	P1: Polybasic Attribution of Social Network Discourse *Rodmonga Potapova and Vsevolod Potapov* P2: Detecting Filled Pauses and Lengthenings in Russian Spontaneous Speech using SVM *Vasilisa Verkhodanova and Vladimir Shapranov* P3: Multimodal Perception of Aggressive Behavior *Rodmonga Potapova and Liliya Komalova* P4: Designing High-Coverage Multi-Level Text Corpus for Non-Professional-Voice Conservation *Markéta Jůzová, Daniel Tihelka and Jindřich Matoušek* P5: A Linguistic Interpretation of the Atom Decomposition of Fundamental Frequency Contour for American English

	Tijana Delić, Branislav Gerazov, Branislav Popović and Milan Sečujski P6: Emotional speech of 3-years old children: norm-risk-deprivation *Olga Frolova and Elena Lyakso* P7: Profiling a Set of Personality Traits of a Text's Author: a Corpus-Based Approach *Tatiana Litvinova, Olga Zagorovskaya, Olga Litvinova and Pavel Seredin* P8: Unsupervised trained functional discourse parser for e-learning materials scaffolding *Varvara Krayvanova and Svetlana Duka* P9: Low Inter-Annotator Agreement in Sentence Boundary Detection and Personality *Anton Stepikhov and Anastassia Loukina* P10: Modeling Imperative Utterances in Russian Spoken Dialogue: Verb-Central Quantitative Approach *Olga Blinova* P11: An Exploratory Study on Sociolinguistic Variation of Spoken Russian *Natalia Bogdanova-Beglarian, Tatiana Sherstinova, Olga Blinova and Gregory Martynenko* P12: Speech Acts Annotation of Everyday Conversations in the ORD corpus of Spoken Russian *Tatiana Sherstinova* P13: Design of a Speech Corpus for Research on Cross-Lingual Prosody Transfer *Milan Sečujski, Branislav Gerazov, Tamás Gábor Csapó, Vlado Delić, Philip Garner, Aleksandar Gjoreski, David Guennec, Zoran Ivanovski, Aleksandar Melov, Géza Németh, Ana Stojković and György Szaszák* P14: Sociolinguistic Extension of the ORD Corpus of Russian Everyday Speech *Natalia Bogdanova-Beglarian, Tatiana Sherstinova, Olga Blinova, Olga Ermolova, Ekaterina Baeva, Gregory Martynenko and Anastasia Ryko* P15: Detecting state of aggression in sentences using CNN *Denis Gordeev* P16: Tonal Specification of Perceptually Prominent Non-Nuclear Pitch Accents in Russian *Nina Volskaya and Tatiana Kachkovskaia* P17: Lexical Stress in Punjabi and its Representation in PLS *Swaran Lata, Swati Arora and Simerjeet Kaur* P18: Comparative analysis of classifiers for automatic language recognition in spontaneous speech *Konstantin Simonchik, Sergey Novoselov and Galina Lavrentyeva* P19: Semi-automatic Speaker Verification System Based on Analysis of Formant, Durational and Pitch Characteristics *Elena Bulgakova and Aleksei Sholohov* P20: Scores Calibration in Speaker Recognition Systems *Andrey Shulipa, Sergey Novoselov and Yuri Matveev* P21: Speech Features Evaluation for Small Set Automatic Speaker Verification Using GMM-UBM System *Ivan Rakhmanenko and Roman Meshcheryakov* P22: Approaches for Out-of-Domain Adaptation to Improve Speaker Recognition Performance *Andrey Shulipa, Sergey Novoselov and Aleksandr Melnikov* P23: Prosody Analysis of Malay Language Storytelling Corpus *Izzad Ramli, Noraini Seman, Norizah Ardi and Nursuriati Jamil* P24: Finding speaker position under difficult acoustic conditions *Evgeniy Shuranov, Alexander Lavrentyev, Alexey Kozlyaev and Valeriya Volkovaya* P25: Scenarios of Multimodal Information Navigation Services for Users in Cyberphysical Environment *Irina Vatamaniuk, Dmitriy Levonevskiy, Anton Saveliev and Alexander Denisov*
16:00-16:30	**Coffee break**
16:30-18:30	**Speaker and language recognition** *Chair: Iosif Mporas, University of Hertfordshire, UK*
16:30-16:50	Investigation of Segmentation in i-Vector based Speaker Diarization of Telephone Speech *Zbynek Zajic, Marie Kunesova and Vlasta Radova*
16:50-17:10	Improving Robustness of Speaker Verification by Fusion of Prompted Text-Dependent & Text-Independent Operation Modalities *Iosif Mporas, Saeid Safavi and Reza Sotudeh*
17:10-17:30	Convolutional Neural Network in the Task of Speaker Change Detection *Marek Hruz and Marie Kunesova*
17:30-17:50	Online Biometric Identification With Face Analysis in Web Applications *Gerasimos Arvanitis, Konstantinos Moustakas and Nikos Fakotakis*
17:50-18:10	Language Identification using Time Delay Neural Network D-Vector on Short Utterances *Maxim Tkachenko, Alexander Yamshinin, Nikolay Luibimov, Mikhail Kotov and Marina Nastasenko*

18:10-18:30	On Individual Polyinformativity of Speech and Voice Regarding Speaker's Auditive Attribution (Forensic Phonetic Aspect) *Rodmonga Potapova and Vsevolod Potapov*
18:30-18:40	**Closing ceremony**
	Saturday, August, 27th
09:00-15:00	**Budapest tour**