

# "SpeD 2021" PROGRAM

*Note: The times are displayed in Bucharest Local Time – Eastern European Summer Time (EEST) (UTC + 3 or GMT + 2)*

**October 13, 2021**

**MS Teams, SpeD 2021 – General channel**

**9:30 – 10:00**

Welcome Message from the Organizing Committee and Foreword – *Corneliu Burileanu*, University "Politehnica" of Bucharest; *Horia-Nicolai Teodorescu*, member of the Romanian Academy, "Gheorghe Asachi" Technical University of Iași.

## Session 1: Person Identification: Techniques, Current Issues, Forensic Speech

**Chair: Horia-Nicolai Teodorescu**

**10:00 – 10:50**

- *Invited Keynote*: Speech as Personally Identifiable Information  
*Isabel Trancoso*  
*Instituto Superior Técnico (IST), University of Lisbon, Portugal*

**10:50 – 11:10**

- A Fully Autonomous Person Re-Identification System  
*Roxana Mihaescu*<sup>1,2</sup>, *Mihai Chindea*<sup>2</sup>, *Serban-Vasile Carata*<sup>2</sup>, *Marian Ghenescu*<sup>2</sup>,  
*Constantin Paleologu*<sup>1</sup>  
<sup>1</sup> *University "Politehnica" of Bucharest, Romania*  
<sup>2</sup> *Softtrust Vision Analytics, Bucharest, Romania*

**11:10 – 11:30**

- Towards Detection of Synthetic Utterances in Romanian Language Speech Forensics  
*Gheorghe Pop, Dragos Burileanu*  
*Speech and Dialogue Research Laboratory, University "Politehnica" of Bucharest, Romania*

**11:30 – 11:50**

- Speaker Verification Experiments Using Identity Vectors, on a Romanian Speakers Corpus  
*Oana-Mariana Novac, Stefan-Adrian Toma, Emil Bureaca*  
*Military Technical Academy "Ferdinand I", Bucharest, Romania*

**11:50 – 12:30 Short Break**

## Session 2: Speech Analysis for Medical Applications. Children's Speech

**Chair: Adriana Stan**

### 12:30 – 12:50

- A Review of Automated Intelligibility Assessment for Dysarthric Speakers  
*Andy Huang, Kyle Hall, Catherine Watson, Seyed Reza Shahamiri*  
*Dept. of Electrical, Computer, and Software Engineering, The University of Auckland, New Zealand*

### 12:50 – 13:10

- Speech under Combined Schizophrenia and Salivary Flow Alterations – Preliminary Data and Results  
*Horia-Nicolai Teodorescu<sup>1,2</sup>, Sorin Andrian<sup>3</sup>, Cristina Angela Ghiorghe<sup>3</sup>, Stefan Ghelțu<sup>1</sup>, Ionuț Tărăboanță<sup>3</sup>*  
<sup>1</sup> “Gheorghe Asachi” Technical University of Iași, Romania  
<sup>2</sup> Romanian Academy – Iași Branch, Romania  
<sup>3</sup> Faculty of Dental Medicine “Grigore T. Popa”, University of Medicine and Pharmacy, Iași, Romania

### 13:10 – 13:30

- Dunstan Baby Language Classification with CNN  
*Costin Andrei Bratan<sup>1</sup>, Mirela Gheorghe<sup>1</sup>, Ioan Ispas<sup>2,3</sup>, Eduard Franti<sup>4,3</sup>, Monica Dascalu<sup>1,3</sup>, Silvia Maria Stoicescu<sup>5,6</sup>, Ioana Rosca<sup>7,8</sup>, Florentina Gherghiceanu<sup>7</sup>, Doina Dumitrache<sup>9</sup>, Leonard Nastase<sup>7,10</sup>*  
<sup>1</sup> ETTI, University “Politehnica” of Bucharest, Romania  
<sup>2</sup> “Petru Maior” University of Târgu Mureș, Romania  
<sup>3</sup> ICIA, Bucharest, Romania  
<sup>4</sup> IMT, Bucharest, Romania  
<sup>5</sup> Polizu Maternity, Bucharest Romania  
<sup>6</sup> INSMC “Alessandrescu-Rusescu”, Bucharest, Romania  
<sup>7</sup> UMF “Carol Davila”, Bucharest, Romania  
<sup>8</sup> Clinical Hospital of Obstetrics and Gynecology “Prof. Dr. Panait Sârbu”, Bucharest, Romania  
<sup>9</sup> Secondary School “Banu Baleanu”, Bolintin Deal, Romania  
<sup>10</sup> Obstetrics, Gynecology and Neonatology – Polizu Clinical Hospital, Bucharest, Romania

### 13:30 – 16:00 Break

#### **Xperi Corporation – Presentation**

**14:00 – 14:30, MS Teams, Sponsor – Xperi channel**

**Speaker: Corneliu Zaharia**, Vice President VLSI

## Thales – Presentation

**15:00 – 15:30, MS Teams, Sponsor – Thales channel**

**Speaker:** *Bogdan-Andrei Niculae*, Thales Alenia Space Deputy Local Engineering Manager

### 16:00 – 16:20

- Dysarthric Speech Augmentation Using Prosodic Transformation and Masking for Subword End-to-end ASR

***Mohammad Soleymanpour<sup>1</sup>, Michael T. Johnson<sup>1</sup>, Jeffery Berry<sup>2</sup>***

*<sup>1</sup> Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States*

*<sup>2</sup> Speech Pathology and Audiology, Marquette University, Milwaukee, WI, United States*

### 16:20 – 16:40

- Mispronunciation Detection and Diagnosis for Mandarin Accented English Speech

***Subash Khanal, Mohammad Soleymanpour, Narjes Bozorg, Michael T. Johnson***

*Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States*

### 16:40 – 17:00

- Infant Vocal Tract Development Analysis and Diagnosis by Cry Signals with CNN Age Classification

***Chunyan Ji<sup>1</sup>, Yi Pan<sup>2</sup>***

*<sup>1</sup> Dept. of Computer Science, Georgia State University, Atlanta, United States*

*<sup>2</sup> Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China*

### 17:00 – 17:20

- Comparison in Suprasegmental Characteristics between Typical and Dysarthric Talkers at Varying Severity Levels

***Mohammad Soleymanpour<sup>1</sup>, Michael T. Johnson<sup>1</sup>, Jeffery Berry<sup>2</sup>***

*<sup>1</sup> Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States*

*<sup>2</sup> Speech Pathology and Audiology, Marquette University, Milwaukee, WI, United States*

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**October 14, 2021**

**MS Teams, *SpeD 2021 – General channel***

**Session 3: Spoken Language Recognition.  
Speech Interfaces**

**Chair: Corneliu Rusu**

**10:00 – 11:00**

- ***Invited Keynote***: Psychoacoustic Techniques for Noise-Robust Speech Recognition  
*Yoshikazu Miyanaga*  
*Chitose Institute of Science and Technology (CIST), Hokkaido, Japan*

**11:00 – 11:20**

- Improvements of SpeeD's Romanian ASR System During ReTeRom Project  
*Alexandru-Lucian Georgescu, Horia Cucu, Corneliu Burileanu*  
*Speech and Dialogue Research Laboratory, University "Politehnica" of Bucharest, Romania*

**11:20 – 11:40**

- Establishing a Baseline of Romanian Speech-to-Text Models  
*Dan Ungureanu<sup>1</sup>, Madalina Badeanu<sup>1</sup>, Gabriela Catalina Marica<sup>1</sup>, Mihai Dascalu<sup>1</sup>, Dan Ioan Tufis<sup>2</sup>*  
*<sup>1</sup> Computer Science Dept., University "Politehnica" of Bucharest, Romania*  
*<sup>2</sup> Research Institute for Artificial Intelligence "Mihai Drăgănescu", Romanian Academy, Bucharest, Romania*

**11:40 – 12:00**

- Assessment of Pronunciation in Language Learning Applications  
*Camelia-Georgiana Stativă, Adrian Iftene, Camelia-Maria Miluț*  
*Faculty of Computer Science, "Alexandru Ioan Cuza" University, Iași, Romania*

**12:00 – 12:20**

- Human-Machine Interaction Speech Corpus from the ROBIN project  
*Vasile Păiș, Radu Ion, Andrei-Marius Avram, Elena Irimia, Verginica Barbu Mititelu, Maria Mitrofan*  
*Research Institute for Artificial Intelligence "Mihai Drăgănescu", Romanian Academy, Bucharest, Romania*

**12:20 – 14:30 Break**

**"SpeD 2021" Co-located Event: IEEE Robotics and Automation Society, UPB Student Branch Chapter Meeting**  
**12:40 – 14:10, MS Teams, *UPB-RAS Student Branch Meeting channel***

## Infineon Technologies – Presentation

**13:30 – 14:00, MS Teams, Sponsor – Infineon channel**

**Speaker:** *Günter Krasser*, General Manager Infineon Romania

## Session 4: Speech Analysis, Representation and Models. Emotion Recognition

**Chair:** Horia Cucu

### 14:30 – 14:50

- Detecting Psychological Stress from Speech using Deep Neural Networks and Ensemble Classifiers

*Serban Mihalache, Dragos Burileanu, Corneliu Burileanu*

*Speech and Dialogue Research Laboratory, University “Politehnica” of Bucharest, Romania*

### 14:50 – 15:10

- Influence of Silence and Noise Filtering on Speech Quality Monitoring

*Rahul Jaiswal*

*Dept. of Information & Communication Technology, University of Agder, Grimstad, Norway*

### 15:10 – 15:30

- Effects of F0 Estimation Algorithms on Ultrasound-Based Silent Speech Interfaces

*Pengyu Dai, Mohammed Salah Al-Radhi, Tamás Gábor Csapó*

*Dept. of Telecommunications and Media Informatics, Budapest University of Technology and Economics, Hungary*

### 15:30 – 15:50

- Autoregressive Articulatory WaveNet Flow for Speaker-Independent Acoustic-to-Articulatory Inversion

*Narjes Bozorg, Michael T. Johnson, Mohammad Soleymanpour*

*Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States*

**15:50 – 16:20 Short Break**

## Session 5: Speech Synthesis

**Chair:** Mircea Giurgiu

### 16:20 – 16:40

- The MARA Corpus: Expressivity in End-to-end TTS Systems using Synthesised Speech Data

*Adriana Stan<sup>1</sup>, Beáta Lőrincz<sup>1,2</sup>, Maria Nuțu<sup>1,2</sup>, Mircea Giurgiu<sup>1</sup>*

<sup>1</sup> *Technical University of Cluj-Napoca, Romania*

<sup>2</sup> *Babeş-Bolyai University, Cluj-Napoca, Romania*

### 16:40 – 17:00

- Synthetic Speech Detection Using Neural Networks  
*Ricardo Reimao, Vassilios Tzerpos*  
*Electrical Engineering and Computer Science, York University, Toronto, Canada*

### 17:00 – 17:20

- An Analysis of the Data Efficiency in Tacotron2 Speech Synthesis System  
*Georgiana Săracu, Adriana Stan*  
*Technical University of Cluj-Napoca, Romania*

### 17:20 – 17:40

- Project Văc: Can a Text-to-Speech Engine Generate Human Sentiments?  
*Shivam Kulkarni<sup>1</sup>, Luis Barbado<sup>1</sup>, Jordan Hosier<sup>2,3</sup>, Yu Zhou<sup>2</sup>,  
Siddharth Rajagopalan, Vijay K. Gurbani<sup>2,1</sup>*  
<sup>1</sup> *Illinois Institute of Technology, Chicago, IL, United States*  
<sup>2</sup> *Vail Systems, Inc., Deerfield, IL, United States*  
<sup>3</sup> *Northwestern University, Evanston, IL, United States*

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**October 15, 2021**

**MS Teams, SpeD 2021 – General channel**

## Session 6: Topics in Signal Processing. Artificial Intelligence Applications

**Chair: Constantin Paleologu**

### 10:00 – 11:00

- *Invited Keynote*: Forward-backward Steps and Variations  
*Jean-Christophe Pesquet*  
*Center for Visual Computing – OPIS Inria group and CentraleSupélec – University  
Paris-Saclay, France*

### 11:00 – 11:20

- A Data-Reuse Approach for an Optimized LMS Algorithm  
*Alexandru-George Rusu<sup>1,2</sup>, Laura-Maria Dogariu<sup>1</sup>, Silviu Ciochină<sup>1</sup>,  
Constantin Paleologu<sup>1</sup>*  
<sup>1</sup> *Dept. of Telecommunications, University “Politehnica” of Bucharest, Romania*  
<sup>2</sup> *Dept. of Research and Development, Rohde & Schwarz Topex, Bucharest, Romania*

### 11:20 – 11:40

- Neural Networks for Automatic Environmental Sound Recognition  
*Svetlana Segarceanu<sup>1</sup>, George Suciuc<sup>1</sup>, Inge Gavath<sup>2</sup>*  
<sup>1</sup> *Beia Consult International, Bucharest, Romania*  
<sup>2</sup> *University “Politehnica” of Bucharest, Romania*

### 11:40 – 12:00

- Results on the MFCC Extraction for Improving Audio Capabilities of TIAGo Service Robot  
*Toma Telembici, Lacrimioara Grama, Lorena Muscar, Corneliu Rusu*  
*Signal Processing Group, Electronics Dept., Technical University of Cluj-Napoca, Romania*

### 12:00 – 12:30 Short Break

### 12:30 – 12:50

- Gesture Recognition using PYTHON  
*Alexandru Octavian Calin<sup>1</sup>, Mihaela Hnatiuc<sup>2</sup>, Jan Catalin Iov<sup>3</sup>*  
*<sup>1</sup> Technologies and Telecommunication System, Constanța Maritime University, Romania*  
*<sup>2</sup> Electronic and Telecommunication Dept., Constanța Maritime University, Romania*  
*<sup>3</sup> Association for Education and Research in Ethics and Law - EDUCED, Iași, Romania*

### 12:50 – 13:10

- MARS: the First Romanian Pollen Dataset using a Rapid-E Particle Analyzer  
*Mihai Boldeanu<sup>1,2</sup>, Cristina Marin<sup>1,2</sup>, Dragos Ene<sup>1</sup>, Luminița Marmureanu<sup>1</sup>,  
Horia Cucu<sup>2</sup>, Corneliu Burileanu<sup>2</sup>*  
*<sup>1</sup> Remote Sensing Dept. INOE 2000, Bucharest, Romania*  
*<sup>2</sup> University “Politehnica” of Bucharest, Romania*

### 13:10 – 13:30

- Versatility and Population Diversity of Evolutionary Algorithms in Automated Circuit Sizing Applications  
*Cătălin Vișan<sup>1</sup>, Octavian Pascu<sup>1</sup>, Marius Stănescu<sup>1</sup>, Horia Cucu<sup>1</sup>, Cristian Diaconu<sup>2</sup>,  
Andi Buzo<sup>3</sup>, Georg Pelz<sup>3</sup>*  
*<sup>1</sup> University “Politehnica” of Bucharest, Romania*  
*<sup>2</sup> Infineon Technologies, Bucharest, Romania*  
*<sup>3</sup> Infineon Technologies, Munich, Germany*

### 13:30 – 15:30 Break

## NXP Semiconductors – Presentation

14:00 – 14:30, MS Teams, Sponsor – NXP channel

Speaker: *Mircea Ioniță*, Sr. Director Embedded SW Engineering, NXP Semiconductors Romania

## Session 7: Natural Language Processing

Chair: *Dan Tufiș*

### 15:30 – 15:50

- Automatic Segmentation of Texts based on Stylistic Features  
*Horia-Nicolai Teodorescu<sup>1,2</sup>, Speranta Cecilia Bolea<sup>3</sup>*  
*<sup>1</sup> “Gheorghe Asachi” Technical University of Iași, Romania*  
*<sup>2</sup> Romanian Academy – Iași Branch, Romania*  
*<sup>3</sup> Institute of Computer Science, Romanian Academy – Iași Branch, Romania*

**15:50 – 16:10**

- A Cognitive View on Intonational Meaning

*Doina Jitcă*

*Institute of Computer Science, Romanian Academy – Iași Branch, Romania*

**16:10 – 16:30**

- Word Embeddings for Romanian Language and Their Use for Synonyms Detection

*Claudiu Marius Popescu, Corneliu Rusu, Lacrimioara Grama*

*Signal Processing Group, Electronics Dept., Technical University of Cluj-Napoca, Romania*

**16:30 – 16:50**

- Romanian Printed Language, Statistical Independence and the Type II Statistical Error

*Alexandru Dinu<sup>1</sup>, Adriana Vlad<sup>1,2</sup>*

*<sup>1</sup> Faculty of Electronics, Telecommunications and Information Technology, University “Politehnica” of Bucharest, Romania*

*<sup>2</sup> Research Institute for Artificial Intelligence “Mihai Drăgănescu”, Romanian Academy, Bucharest, Romania*

- 16:50** Concluding remarks – *Corneliu Burileanu, University “Politehnica” of Bucharest*