



Satellite Workshops at the 2023 IEEE International Conference on Acoustics, Speech and Signal Processing

Workshop Chairs:

Maria Sabrina Greco (University of Pisa) & Gerasimos Potamianos (University of Thessaly)

Program – Saturday June 10th

Morning	Afternoon
W10 SLTAT 2023: Eighth International Workshop on Sign Language Translation and Avatar Technology	
W11 SASB 2023: Self-Supervision in Audio, Speech and Beyond	
W12 Workshop on Signal Processing for Synthetic Apertures	
W13 Timely and Private Machine Learning over Networks	W16 Ambient AI: Multimodal Wearable Sensor Understanding
W14 AI-Enabled Medical Image Analysis Workshop and COVID-19 Diagnosis Competition (AI-MIA-COV19D)	W17 AMHAT 2023: Advances in Multimodal Hearing Assistive Technologies
W15 6G-USGIC: 6G Ubiquitous Space Ground Integrated Communications	

W10 SLTAT 2023: Eighth International Workshop on Sign Language Translation and Avatar Technology

Organizers: Eleni Efthimiou (*ATHENA Research Center, Greece*)
Evita Fotinea (*ATHENA Research Center, Greece*)
Kevin Lee (*EQ4ALL, S. Korea*)
Thomas Hanke (*Universität Hamburg, Germany*)
John C. McDonald (*DePaul University, USA*)
Rosalee Wolfe (*ATHENA Research Center, Greece*)

Saturday June 10 (Full Day); Lectures: Nafsika Hall; Posters: WP-B

8:45 AM Welcome: Workshop Organizers

9:00 AM On-Stage Presentations I (Chair: Eleni Efthimiou)

9:00

7158 (W10.24): A Text-to-SL Translation System using 3D Avatar Technology

Sylvie Gibet (Universite Bretagne Sud)

9:30

7098 (W10.10): Improving 3D Pose Estimation for Sign Language

Maksym Ivashechkin (University of Surrey); Oscar Mendez (University of Surrey); Richard Bowden (University of Surrey)

10:00 – 10:30 AM Coffee-Break

10:30 AM Announcements: Workshop Organizers

10:40 AM Elevator Pitches for Poster Session I (1-min)

10:40

7130 (W10.22): Do Predictability Factors towards Signing Avatars Hold Across Cultures?

Abdelhadi Soudi, Manal El Hakkaoui, Kristof Van Laerhoven

10:41

7100 (W10.11): Automatic Alignment between Sign Language Videos and Motion Capture Data: A Motion Energy-Based Approach

Fabrizio Nunnari, Mina Ameli, Shailesh Mishra

10:42

7123 (W10.18): Augmenting Glosses with Geometrical Inflection Parameters for the Animation of Sign Language Avatars

Fabrizio Nunnari, Mishra Shailesh, Patrick Gebhard

10:43

7104 (W10.12): Gloss Alignment Using Word Embeddings

Harry Walsh, Ozge Mercanoglu Sincan, Ben Saunders, Richard Bowden

10:44

6895 (W10.02): Machine Translation to Sign Language using Post-translation Replacement without Placeholders

Taro Miyazaki, Naoki Nakatani, Tsubasa Uchida, Hiroyuki Kaneko, Masanori Sano

10:45

7095 (W10.09): Leveraging Large Language Models with Vocabulary Sharing for Sign Language Translation

Huije Lee, Jung-Ho Kim, Eui Jun Hwang, Jaewoo Kim, Jong C. Park

10:46

7113 (W10.13): Isolated Korean Sign Gloss Recognition: The Phonological Base

Hyun Lee, Han-kyu Lee, Chung Hyun Ahn, Wonjae Lee

10:47

7126 (W10.19): SL-ReDu GSL: A Large Greek Sign Language Recognition Corpus

Katerina Papadimitriou, Galini Sapountzaki, Kyriaki Vasilaki, Eleni Efthimiou, Stavroula-Evita Fotinea, Gerasimos Potamianos

10:48

7129 (W10.21): TrueDepth Measurements of Facial Expressions: Sensitivity to the Angle Between Camera and Face

Lyke D Esselink, Marloes Oomen, Floris Roelofsen

10:49

7121 (W10.16): The Sign Language Interchange Format: Harmonising Sign Language Datasets for Computational Processing

Marc Schulder, Sam Bigeard, Thomas Hanke, Maria Kopf

10:50 AM – 12:00 NOON [Poster Session I \(WP-B\)](#)

12:00 NOON – 2:00 PM Lunch

2:00 PM [Elevator Pitches for Poster Session II \(1-min\)](#)

2:00

7120 (W10.15): Towards Incorporating 3D Space-Awareness into an Augmented Reality Sign Language Interpreter

Fabrizio Nunnari, Eleftherios Avramidis, Vemburaj Chockalingam Yadav, Alain Pagani, Yasser Hamidullah, Sepideh Mollanorozy, Cristina España-Bonet, Emil Woop, Patrick Gebhard

2:01

7122 (W10.17): EASIER Notation – A Proposal for a Gloss-based Scripting Language for Sign Language Generation Based on Lexical Data

Thomas Hanke, Lutz König, Reiner Konrad, Maria Kopf, Marc Schulder, Rosalee J. Wolfe

2:02

7091 (W10.08): Sign Language Avatar Animation Search: an Ani2Ani Search Application

Mathew J Huerta-Enochian, Changyong Ko

2:03

6845 (W10.01): Querying a Sign Language Dictionary with Videos using Dense Vector Search

Mathieu De Coster, Joni Dambre

2:04

7132 (W10.23): When (Shared) Space and Time don't Matter. Remote Video-Mediated (Synchronous and Asynchronous) Communication in Flemish Sign Language

Lien Soetemans, Myriam Vermeerbergen

2:05

7118 (W10.14) (W10.14): Distractor-based Evaluation of Sign Spotting

Natalie Hollain, Martha Larson, Floris Roelofsen

2:06

7087 (W10.07): Asymmetry in Transition Times in American Sign Language

Nicole Barnekow, Meaghan Lidd, Deannia Lucas, John C McDonald

2:07

7128 (W10.20): Extending Morphs in AZee using Pose Space Deformations

Paritosh Sharma, Michael Filhol

2:08

7029 (W10.04): A Method for Generating a Non-Manual Feature Model for Sign Language Processing

Robert G Smith, Markus Hofmann

2:09

7077 (W10.05): Motion Editing Tool for Reproducing Grammatical Elements of Japanese Sign Language Avatar Animation

Tsubasa Uchida, Naoki Nakatani, Taro Miyazaki, Hiroyuki Kaneko, Masanori Sano

2:10

6971 (W10.03): Recognizing Highly Variable American Sign Language in Virtual Reality

Md Shahinur Alam, Myles Bastion, Melissa Malzkuhn, Lorna C Quandt

2:10 – 3:30 PM [Poster Session II](#) (Area: **WP-B**)

3:30 – 4:00 PM **Coffee-Break**

4:00 PM **On-Stage Presentation II** (Chair: **Kevin Lee**)

7079 (W10.06): Representation Matters: The Case for Diversifying Sign Language Avatars

Maria Kopf (Universität Hamburg); Rehana Omardeen (European Union of the Deaf); Davy Van Landuyt (European Union of the Deaf)

Poster Session I

Saturday June 10 (10:50 AM – 12:00 NOON); Posters: WP-B

Chair: John C. McDonald

WP-B-1

7130 (W10.22): Do Predictability Factors towards Signing Avatars Hold Across Cultures?
Abdelhadi Soudi (ENSMR); Manal El Hakkaoui (ENMSR); Kristof Van Laerhoven (University of Siegen)

WP-B-2

7100 (W10.11): Automatic Alignment between Sign Language Videos and Motion Capture Data: A Motion Energy-Based Approach
Fabrizio Nunnari (DFKI GmbH); Mina Ameli (DFKI GmbH); Shailesh Mishra (DFKI GmbH)

WP-B-3

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Fabrizio Nunnari (DFKI GmbH); Mishra Shailesh (DFKI GmbH); Patrick Gebhard (DFKI GmbH)

WP-B-5

7104 (W10.12): Gloss Alignment Using Word Embeddings
Harry Walsh (University of Surrey); Ozge Mercanoglu Sincan (University of Surrey); Ben Saunders (University of Surrey); Richard Bowden (University of Surrey)

WP-B-6

6895 (W10.02): Machine Translation to Sign Language using Post-translation Replacement without Placeholders
Taro Miyazaki (NHK Science & Technology Research Laboratories); Naoki Nakatani (NHK Science & Technology Research Laboratories); Tsubasa Uchida (NHK Science & Technology Research Laboratories); Hiroyuki Kaneko (NHK Science & Technology Research Laboratories); Masanori Sano (NHK Science & Technology Research Laboratories)

WP-B-7

7095 (W10.09): Leveraging Large Language Models with Vocabulary Sharing for Sign Language Translation
Huije Lee (KAIST); Jung-Ho Kim (KAIST); Eui Jun Hwang (KAIST); Jaewoo Kim (KAIST); Jong C. Park (KAIST)

WP-B-8

7113 (W10.13): Isolated Korean Sign Gloss Recognition: The Phonological Base
Hyun Lee (ETRI); Han-kyu Lee (ETRI); Chung Hyun Ahn (ETRI); Wonjae Lee (ETRI)

WP-B-10

7126 (W10.19): SL-ReDu GSL: A Large Greek Sign Language Recognition Corpus

Katerina Papadimitriou (University of Thessaly); *Galini Sapountzaki* (University of Thessaly); *Kyriaki Vasilaki* (ILSP / Athena RC); *Eleni Efthimiou* (ILSP / Athena RC); *Stavroula-Evita Fotinea* (ILSP / Athena RC); *Gerasimos Potamianos* (University of Thessaly)

WP-B-11

7129 (W10.21): TrueDepth Measurements of Facial Expressions: Sensitivity to the Angle Between Camera and Face

Lyke D Esselink (University of Amsterdam); *Marloes Oomen* (University of Amsterdam); *Floris Roelofsen* (University of Amsterdam)

WP-B-12

7121 (W10.16): The Sign Language Interchange Format: Harmonising Sign Language Datasets for Computational Processing

Marc Schulder (Universität Hamburg); *Sam Bigeard* (Universität Hamburg); *Thomas Hanke* (Universität Hamburg); *Maria Kopf* (Universität Hamburg)

Poster Session II

Saturday June 10 (2:10 – 3:30 PM); Posters: WP-B

Chair: Thomas Hanke

WP-B-1

7120 (W10.15): Towards Incorporating 3D Space-Awareness into an Augmented Reality Sign Language Interpreter

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WP-B-2

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Thomas Hanke (Universität Hamburg); *Lutz König* (Universität Hamburg); *Reiner Konrad* (Universität Hamburg); *Maria Kopf* (Universität Hamburg); *Marc Schulder* (Universität Hamburg); *Rosalee J. Wolfe* (ILSP / Athena RC)

WP-B-3

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WP-B-4

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Lien Soetemans (KU Leuven); Myriam Vermeerbergen (KU Leuven)

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WP-B-12

6971 (W10.03): Recognizing Highly Variable American Sign Language in Virtual Reality

Md Shahinur Alam (Gallaudet University); Myles Bastion (CymaSpace); Melissa Malzkuhn (Gallaudet University); Lorna C Quandt (Gallaudet University)

W11 SASB 2023: Self-Supervision in Audio, Speech and Beyond

Organizers: **Titouan Parcollet** (*Samsung AI Research Center, UK*)
Paola Garcia (*Johns Hopkins University, USA*)
Xie Chen (*Shanghai Jiao Tong University, China*)
Marcely Zanon Boito (*NAVER Labs Europe, France*)
Po-Yao (Bernie) Huang (*Meta AI, USA*)
Yannick Estève (*Avignon University, France*)
Tara Sainath (*Google Research, USA*)

Saturday June 10 (Full Day); Lectures: Jupiter; Posters: WP-A

8:30 AM **Opening Remarks: Workshop Organizers**

8:40 AM **Keynote #1: Hung-Yi Lee** (*National Taiwan University, Taiwan*)
Advancing Universal Speech Models Through Self-Supervised Learning: Progress, Challenges, and Future Direction
(Chair: Paola Garcia)

9:20 – 10:30 AM **Poster Session I (WP-A) & Coffee-Break (10:00 – 10:30 AM)**

10:30 – 12:00 NOON **Morning Panel** (Chair: Marcely Zanon Boito)

Karen Livescu (*Toyota Technological Institute at Chicago, USA*)

What Do Self-Supervised Speech Representation Models Know? A Layer-Wise Analysis

Themis Stafylakis (*Omilia, Greece*)

Extracting Speaker and Emotion Information from Self-Supervised Speech Models

Shinji Watanabe (*Carnegie Mellon University, USA*)

Attempts to Reproduce Large Pre-trained Models on an Academic Computing Scale

Lunch Break – Reconvenes at 1:30 PM

1:30 PM **Keynote #2: David Harwarth** (*The University of Texas at Austin, USA*)
Multimodal and Multilingual Self-Supervised Learning for Speech and Audio
(Chair: Po-Yao (Bernie) Huang)

2:10 PM **Keynote #3: Ankur Bapna** (*Google Brain*)
Improving Self-Supervised Models of Speech by Learning from Text and NLP
(Chair: Xie Chen)

2:50 – 4:00 PM **Poster Session II (WP-A) & Coffee-Break (3:30 – 4:00 PM)**

4:00 – 5:30 PM Afternoon Panel (Chair: **Tara Sainath**)

Emmanuel Dupoux (*École des Hautes Études en Sciences Sociales, France*)
TBA

Sanjeev Khudanpur (*Johns Hopkins University, USA*)
TBA

Odette Scharenborg (*Delft University of Technology, The Netherlands*)
Building Speech Technology for Unwritten Languages Using Visual Information

5:30 – 5:45 PM Closing Remarks: Workshop Organizers

Poster Session I

Saturday June 10 (9:20 – 10:30 AM); Poster Area: WP-A

Chair: Tara Sainath

WP-A-1

6947 (W11.04): A Reference-less Quality Metric for Automatic Speech Recognition via Contrastive-Learning of a Multi-Language Model with Self-Supervision

Kamer A Yuksel (*aiXplain Inc.*); **Thiago Ferreira** (*aiXplain Inc.*); **Ahmet Gündüz** (*aiXplain Inc.*); **Mohamed Elbadrashiny** (*aiXplain Inc.*); **Golara Javadi** (*aiXplain Inc.*)

WP-A-2

7016 (W11.20): Channel-Aware Pretraining of Joint Encoder-Decoder Self-Supervised Model for Telephonic-Speech ASR

Vruna N Sukhadia (*Indian Institute of Technology Madras*); **S Umesh** (*Indian Institute of Technology Chennai*)

WP-A-3

6873 (W11.02): CHAPTER: Exploiting Convolutional Neural Network Adapters for Self-Supervised Speech Models

Zih-Ching Chen (*National Taiwan University*); **Yu-Shun Sung** (*National Taiwan University*); **Hung-yi Lee** (*National Taiwan University*)

WP-A-5

6959 (W11.06): Efficient Utilization of Large Pre-Trained Models for Low Resource ASR

Peter Vieting (*RWTH Aachen University*); **Christoph M. Lüscher** (*RWTH Aachen University*); **Julian Dierkes** (*RWTH Aachen University*); **Ralf Schlüter** (*RWTH Aachen University*); **Hermann Ney** (*RWTH Aachen University*)

WP-A-6

6967 (W11.08): Fine-tuning Strategies for Faster Inference using Speech Self-Supervised Models: A Comparative Study

Salah Zaiem (*Telecom Paris*); **Robin Algayres** (*Inria*); **Titouan Parcollet** (*Samsung AI Cambridge & University of Cambridge*); **Slim Essid** (*Télécom Paris*); **Mirco Ravanelli** (*Université de Montréal*)

WP-A-7

7010 (W11.16): Improving Label-Deficient Keyword Spotting Through Self-Supervised Pretraining

Holger S Bovbjerg (Aalborg University); Zheng-Hua Tan (Aalborg University)

WP-A-8

6969 (W11.09): Measuring the Impact of Domain Factors in Self-Supervised Pre-Training

Ramon S Sanabria (The University of Edinburgh); Wei-Ning Hsu (Massachusetts Institute of Technology); Alexei Baevski (Facebook AI Research); Michael Auli (Facebook)

WP-A-10

6956 (W11.05): Phone and Speaker Spatial Organization in Self-Supervised Speech Representations

Pablo E Riera (Universidad de Buenos Aires); Manuela Cerdeiro (Universidad de Buenos Aires); Leonardo D Pepino (Universidad de Buenos Aires); Luciana Ferrer (Universidad de Buenos Aires)

WP-A-11

6991 (W11.13): Specialized Semantic Enrichment of Speech Representations

Gaëlle Laperrière (LIA - Avignon University); Ha Nguyen (LIA - Avignon University); Sahar Ghannay (LISN); Bassam Jabaian (LIA - Avignon University); Yannick Estève (LIA - Avignon University)

WP-A-12

7013 (W11.18): UNFUSED: UNsupervised Finetuning Using SElf supervised Distillation

Ashish Seth (Indian Institute of Technology Madras); Sreyan Ghosh (University of Maryland, College Park); S Umesh (Indian Institute of Technology Chennai); Dinesh Manocha (University of Maryland, College Park)

Poster Session II

Saturday June 10 (2:50 – 4:00 PM); Poster Area: WP-A

Chair: Titouan Parcollet

WP-A-1

6993 (W11.14): A Comparative Study of Self-Supervised Speech Representations in Read and Spontaneous TTS

Siyang Wang (KTH Royal Institute of Technology); Gustav Eje Henter (KTH Royal Institute of Technology); Joakim Gustafson (KTH Royal Institute of Technology); Eva Szekely (KTH Royal Institute of Technology)

WP-A-2

6982 (W11.11): A Vector Quantized Masked Autoencoder for Speech Emotion Recognition

Samir Sadok (AIMAC); Simon Leglaive (CentraleSupélec, IETR); Renaud Séguier (CENTRALESUPELEC)

WP-A-3

6963 (W11.07): AudioSlots: A Slot-Centric Generative Model for Audio Separation

Pradyumna Reddy (University College London); Scott Wisdom (Google); Klaus Greff (Google); John Hershey (Google); Thomas Kipf (Google Brain)

WP-A-5

6973 (W11.10): Deep Investigation of Intermediate Representations in Self-Supervised Learning Models for Speech Emotion Recognition

Zhi Zhu (Fairy Devices Inc.); Yoshinao Sato (Fairy Devices Inc.)

WP-A-6

7011 (W11.17): Improving DINO-Based Self-Supervised Speaker Verification with Progressive Cluster-Aware Training

Bing Han (Shanghai Jiao Tong University); Wen Huang (Shanghai Jiao Tong University); Zhengyang Chen (Shanghai Jiao Tong University); Yanmin Qian (Shanghai Jiao Tong University)

WP-A-7

7014 (W11.19): Investigation of the Quality of Pseudo-Labels for the Self-Supervised Speaker Verification Task

Abderrahim Fathan (Computer Research Institute of Montreal (CRIM)); Jahangir Alam (Computer Research Institute of Montreal (CRIM)); Woohyun Kang (Computer Research Institute of Montreal (CRIM))

WP-A-8

7003 (W11.15): Pac-HuBERT: Self-Supervised Music Source Separation via Primitive Auditory Clustering and Hidden-Unit BERT

Ke Chen (University of California San Diego); Gordon Wichern (Mitsubishi Electric Research Laboratories (MERL)); François G Germain (Mitsubishi Electric Research Laboratories (MERL)); Jonathan LeRoux (Mitsubishi Electric Research Laboratories (MERL))

WP-A-10

6833 (W11.01): Self-Supervised Audio Encoder with Contrastive Pretraining for Respiratory Anomaly Detection

Shubham Kulkarni (Sony); Hideaki Watanabe (Sony); Fuminori Homma (Sony)

WP-A-11

6990 (W11.12): Self-Supervised Learning for Infant Cry Analysis

Arsenii Gorin (Ubenwa); Cem Subakan (Mila); Sajjad Abdoli (École de technologie supérieure); Junhao Wang (Ubenwa); Samantha Latremouille (Ubenwa); Charles C Onu (McGill University)

WP-A-12

6894 (W11.03): Zero-Shot Text-to-Speech Synthesis Conditioned Using Self-Supervised Speech Representation Model

Kenichi Fujita (NTT Corporation); Takanori Ashihara (NTT Corporation); Hiroki Kanagawa (NTT Corporation); Takafumi Moriya (NTT Corporation); Yusuke Ijima (NTT Corporation)

W12 Workshop on Signal Processing for Synthetic Apertures

Organizers: **Kumar Vijay Mishra** (*U.S. DEVCOM Army Research Labs, USA*)
Peter Vouras (*U.S. Department of Defense, USA*)

Saturday June 10 (Full Day); Lectures: Athena; Posters: WP-C

Chair: Peter Vouras (*unless otherwise indicated*)

8:30 AM Introduction: Dr. Peter Vouras

8:45 AM Keynote #1: Prof. Daniel Razansky (*University of Zurich & ETH, Switzerland*)
Triple Modality Transmission-Reflection Optoacoustic Ultrasound (TROPUS) Computed Tomography

9:15 AM

6825 (W12.01): Scoping a Document on Recommended Practices for Synthetic Aperture Radiometry

Brian Sequeira (JHUAPL); Corina Nafornta (Politehnica University of Timisoara)

9:30 AM

6986 (W12.09): Synthetic Aperture Sonar Micronavigation with Variational Inference of a State-Space Model

Angeliki Xenaki (CMRE, STO-NATO); Yan Pailhas (CMRE, STO-NATO); Alessandro Monti (CMRE, STO-NATO)

9:45 AM

7000 (W12.14): A Unified Semantic Segmentation and Object Detection Framework for Synthetic Aperture Sonar Imagery

Shannon-Morgan Steele (Kraken Robotic Systems Inc.)

10:00 – 11:00 AM Poster Session (Area **WP-C) & Coffee-Break (10:00 – 10:30 AM)**

11:00 AM

6948 (W12.06): Row-Column Beamformer for Fast Volumetric Imaging

Lasse Thurmman Jørgensen (Technical University of Denmark); Sebastian Præsius (Technical University of Denmark); Nathalie Panduro (University of Copenhagen); Sofie Andersen (University of Copenhagen); Charlotte Sørensen (University of Copenhagen); Jørgen Jensen (Technical University of Denmark)

11:15 AM

6962 (W12.07): Bistatic MIMO Radar Sensing of Specularly Reflecting Surfaces for Wireless Power Transfer

Benjamin J. B. Deutschmann (Graz University of Technology); Maximilian Graber (Graz University of Technology); Thomas Wilding (Graz University of Technology); Klaus Witrisal (Graz University of Technology)

11:30 AM Keynote #2: Prof. Marco Martorella (*University of Birmingham, UK*)

Multidimensional Synthetic Aperture Radar

12:00 NOON – 1:30 PM Lunch

1:30 – 2:50 PM Keynotes

1:30 PM Keynote #3: Prof. Andrew Harvey (*University of Glasgow, UK*)
Generalisation of Aperture Synthetic Microscopy: Multi-Aperture Fourier Ptychography

2:00 PM Keynote #4: Prof. Yuejie Chie (*Carnegie Mellon University, USA*)
Solving Corrupted and Ill-Conditioned Systems of Quadratic Equations, Provably

2:30 PM Keynote #5: Prof. Chris Metzler (*University of Maryland, USA*)
Keyhole Imaging: Non-Line-of-Sight Imaging Along a Single Optical Path

2:50 – 3:35 PM Lectures I (Chair: **Brian Sequeira**, *JHUAPL, USA*)

2:50 PM

7008 (W12.15): Deep Denoising Prior-Based Spectral Estimation for Phaseless Synthetic Aperture Radar

Samia B Kazemi (*Rensselaer Polytechnic Institute*); *Bariscan Yonel* (*Rensselaer Polytechnic Institute*); *Birsen Yazici* (*Rensselaer Polytechnic Institute*)

3:05 PM

7009 (W12.16): Stochastic Deep Image Prior for Multishot Compressive Spectral Image Fusion

Roman A Jacome (*Univesridad Industrial de Santander*); *Brayan Monroy* (*Universidad Industrial de Santander*); *Jorge Bacca* (*Universidad Industrial de Santander*); *Henry Arguello* (*Universidad Industrial de Santander*)

3:20 PM

6826 (W12.02): Federated Multi-Task Learning for THz Wideband Channel and DoA Estimation

Ahmet M Elbir (*University of Luxembourg*); *Wei Shi* (*Carleton University*); *Kumar Vijay Mishra* (*United States DEVCOM Army Research Laboratory*); *Symeon Chatzinotas* (*University of Luxembourg*)

3:35 – 3:50 PM Coffee-Break

3:50 PM Keynote #6: Dr. Nik Prajapati (*US National Institute of Standards and Technology, USA*)

Rydberg Atom-Based Field Sensing: An Application Driven Overview

4:10 – 4:40 PM Lectures II (Chair: **Benjamin Deutschmann**, *TU Graz, Austria*)

4:10 PM

6846 (W12.04): Speeding Up Detection and Imaging Using Quantum Radars

David Luong (*Carleton University*); *Bhashyam Balaji* (*Defence Research and Development Canada*); *Sreeraman Rajan* (*Carleton University*)

4:25 PM

7056 (W12.19): Towards Rydberg Atom Synthetic Apertures: Wide-Area High-Resolution RF Amplitude and Phase Imaging with Rydberg Probes

David A Anderson (Rydberg Technologies); *Luis Goncalves* (Rydberg Technologies); *Remy Legaie* (Rydberg Technologies); *Georg Raithel* (Rydberg Technologies)

4:40 PM

6987 (W12.10): Synthetic Aperture RF Reception using Rydberg Atoms

Nikunj Kumar Prajapati (NIST); *Alexandra Artusio-Glimpse* (NIST); *Matthew Simons* (NIST); *Samuel Berweger* (NIST); *Andrew Rotunno* (NIST); *Maitreyi Jayaseelan* (University of Colorado); *Kaleb Campbell* (University of Colorado); *Christopher Holloway* (NIST)

4:55 PM **Keynote #7: Prof. Raghu Raj** (US Naval Research Laboratory, USA)

Computational Imaging via Deep Statistical and Physics-Based Modeling

(Chair: **Peter Vouras**)

5:15 – 5:45 PM **Lectures III**

5:15 PM

6994 (W12.12): Joint Waveform and Wavefront Engineering for Terahertz Communications in 6G

Duschia M Bodet (Northeastern University); *Josep Jornet* (Northeastern University)

5:30 PM

6992 (W12.11): Exploitation of Single-Channel Space-Borne SAR Data for Ship Targets Imaging and Motion Parameters Estimation

Alejandro Testa (Sapienza University of Rome); *Debora Pastina* (Sapienza University of Rome); *Massimo Zavagli* (B-Open Solutions s.r.l.); *Fabrizio Santi* (Sapienza University of Rome); *Chiara Pratola* (e-GEOS); *Michela Corvino* (ESA, ESRIIN)

5:45 PM

6828 (W12.03): An Improved Autofocus Algorithm with Bayesian Tracking of Residual Motion for Automotive MIMO-SAR Imaging

Gabriele Balducci (Politecnico di Milano); *Marco Manzoni* (Politecnico di Milano); *Stefano Tebaldini* (Politecnico di Milano); *Andrea Virgilio Monti-Guarnieri* (Politecnico di Milano); *Claudio Maria Prati* (Politecnico di Milano); *Ivan Russo* (Huawei Technologies Italia S.r.l.)

Note:

7:00 – 9:00 PM Cultural Event at French Consulate, Medieval Castle, Old Town

Saturday June 10 (10:00 – 10:45 AM); Poster Area: WP-C

Chair: Peter Vouras

WP-C-1

7012 (W12.17): Two-Step Adaptive Anti-Mainlobe-Jamming Processing for Polarimetric Conformal Arrays

Wanpeng Huang (University of Electronic Science and Technology of China); *Jinyang He* (University of Electronic Science and Technology of China); *Ziyang Cheng* (University of Electronic Science and Technology of China); *Zishu He* (University of Electronic Science and Technology of China)

WP-C-2

6978 (W12.08): Satellite-to-Satellite Linear Array SAR 3D Backward Projection Super-Resolution Imaging Algorithm with Compressed Sensing

Zhexian Liu (Xidian University); Shuai Shao (Xidian University); Hongwei Liu (Xidian University)

WP-C-4

7030 (W12.18): Implicit Channel Learning for Machine Learning Applications in 6G Wireless Networks

Ahmet M Elbir (University of Luxembourg); Wei Shi (Carleton University); Kumar Vijay Mishra (United States DEVCOM Army Research Laboratory); Anastasios Papazafeiropoulos (University of Hertfordshire); Symeon Chatzinotas (University of Luxembourg)

WP-C-6

6998 (W12.13): Along Track Slope Compensation in a SIMO Formation

Naomi Petrushevsky (Politecnico di Milano); Andrea Monti-Guarnieri (Politecnico di Milano)

WP-C-7

6936 (W12.05): Fast Cauchy-Rician Modelling of SAR Images with Method of Algebraic Moments Estimator

Mutong LI (Tsinghua University Shenzhen International Graduate School); Ercan E Kuruoglu (Tsinghua-Berkeley Shenzhen Institute)

W13 Timely and Private Machine Learning over Networks

Organizers: **Howard H. Yang** (*Zhejiang University, China*)
Nikolaos Pappas (*Linköping University, Sweden*)
Ahmed Arafa (*University of North Carolina at Charlotte, USA*)

Saturday June 10 (AM-only); Lectures: Delphi Amphitheater

Chair: Nikolaos Pappas

8:45 Opening Remarks: Nikolaos Pappas

9:00

7005 (W13.06): Confidence-Based Federated Distillation for Vision-Based Lane-Centering

Yitao Chen (*Arizona State University*); *Dawei Chen* (*Toyota Motor North America*); *Haoxin Wang* (*Georgia State University*); *Kyungtae Han* (*Toyota Motor North America*); *Ming Zhao* (*Arizona State University*)

9:15

6831 (W13.01): Dynamic Scheduling for Federated Edge Learning with Streaming Data

Chung-Hsuan Hu (*Linköping University*); *Zheng Chen* (*Linköping University*); *Erik G. Larsson* (*Linköping University*)

9:30

6964 (W13.05): Model Distributed Inference in Multi-Source Edge Networks

Pengzhen Li (*University of Illinois at Chicago*); *Hulya Seferoglu* (*University of Illinois at Chicago*); *Erdem Koyuncu* (*University of Illinois at Chicago*)

9:45

6872 (W13.02): Low Bit Neural Network Quantization for Speaker Verification

Haoyu Wang (*Shanghai Jiao Tong University*); *Bei Liu* (*Shanghai Jiao Tong University*); *Yifei Wu* (*Shanghai Jiao Tong University*); *Zhengyang Chen* (*Shanghai Jiao Tong University*); *Yanmin Qian* (*Shanghai Jiao Tong University*)

10:00

7007 (W13.07): Resource-Efficient Federated Clustering with Past Negatives Pool

Runxuan Miao (*University of Illinois at Chicago*); *Erdem Koyuncu* (*University of Illinois at Chicago*)

10:15 – 11:15 Break

11:15

6884 (W13.03): Learning Multi-Rate Vector Quantization for Remote Deep Inference

May Malka (*Ben Gurion University*); *Shai Ginzach* (*Rafael*); *Nir Shlezinger* (*Ben-Gurion University*)

11:30

6935 (W13.04): A Momentum-Based Wireless Federated Learning Acceleration With Distributed Principle Decomposition

Yanjie Dong (Shenzhen MSU-BIT University); **Luya Wang** (Shenzhen MSU-BIT University); **Yuanfang Chi** (University of British Columbia); **Xiping Hu** (Beijing Institute of Technology); **Haijun Zhang** (University of Science and Technology Beijing); **Richard Yu** (Carleton University); **Victor Leung** (University of British Columbia)

11:45

7099 (W13.08): PCRIST: Variance Reduction through Periodic Centralized Training in Distributed Subnetwork Training of Residual Networks

Syed Asad Rizvi (University of Houston); **Chen Dun** (Rice University); **Anastasios Kyrillidis** (Rice University)

12:00 Closing Remarks & Networking: Nikolaos Pappas

W14 AI-Enabled Medical Image Analysis Workshop and COVID-19 Diagnosis Competition (AI-MIA-COV19D)

Organizers: **Stefanos Kollias** (*National Technical University of Athens, Greece*)
Xujiong Ye (*University of Lincoln, UK*)
Francesco Rundo (*STMicroelectronics ADG, Italy*)
Dimitrios Kollias (*Queen Mary University London, UK*)

Sat. June 10 (AM-only); Lectures: Salon Des Roses A; Poster: WP-D

Chairs: Stefanos Kollias, Dimitrios Kollias

8:25 Introduction – Start of Workshop: Stefanos Kollias

8:30 Invited Talk: Dimitris Metaxas (*Rutgers University*)
Robust, Scalable and Explainable Analytics for Biomedical Applications

9:00

7222 (W14.12): ALL-IDB Patches: Whole Slide Imaging for Acute Lymphoblastic Leukemia Detection Using Deep Learning

Angelo Genovese (*Università degli Studi di Milano*); **Vincenzo Piuri** (*Università degli Studi di Milano*); **Fabio Scotti** (*Milano University*)

9:15

7220 (W14.10): Color Deconvolution applied to Domain Adaptation in HER2 Histopathological Images

David Anlada-Rotger (*Universitat Politècnica de Catalunya*); **Ferran Marques** (*Universitat Politècnica de Catalunya*); **Montse Pardas** (*Universitat Politècnica de Catalunya*)

9:30

7216 (W14.06): Data-Driven COVID-19 Detection through Medical Imaging

Anastasios Arsenos (*National Technical University of Athens*); **Andjoli Davidhi** (*Aristotle University of Thessaloniki*); **Dimitrios Kollias** (*Queen Mary University London*); **Panos Prassopoulos** (*Aristotle University of Thessaloniki*); **Stefanos Kollias** (*National Technical University of Athens*)

9:45

7195 (W14.01): Deep Convolutional Neural Networks with Transfer Learning for Bone Fracture Recognition Using Small Exemplar Image Datasets

Nikhil Kethu Kumar Reddy (*University of Lincoln*); **Vassilis Cutsuridis** (*University of Lincoln*)

10:00 – 10:20 Poster Session (Area: WP-D) & Coffee-Break

10:20

7217 (W14.07): AI-Enabled Analysis of 3-D CT Scans for Diagnosis of COVID-19 & its Severity

Dimitrios Kollias (*Queen Mary University London*); **Anastasios Arsenos** (*National Technical University of Athens*); **Stefanos Kollias** (*National Technical University of Athens*)

10:35

7219 (W14.09): Bag of Tricks of Hybrid Network for COVID-19 Detection of CT Scans

Chih-Chung Hsu (National Cheng Kung University); **Chih-Yu Jian** (National Pingtung University of Science and Technology); **Chia-Ming Lee** (National Cheng Kung University); **Chi-Han Tsai** (National Cheng Kung University); **Shen Chieh Tai** (National Cheng Kung University)

10:50

7218 (W14.08): Attention-Based Convolutional Neural Network for CT Scan COVID-19 Detection

Alessia Rondinella (University of Catania); **Francesco Guarnera** (University of Catania); **Oliver Giudice** (University of Catania); **Alessandro Ortis** (University of Catania); **Francesco Rundo** (STMicroelectronics ADG); **Sebastiano Battiato** (University of Catania)

11:05

7206 (W14.04): Deep-Covid-Sev: An Ensemble 2D and 3D CNN-Based Approach for COVID-19 Severity Prediction from 3D CT-Scans

Fares Bougourzi (University Paris-Est Créteil); **Fadi Dornaika** (University of the Basque Country); **Amir Nakib** (university Paris Est); **Cosimo Distanto** (National Research Council of Italy - Institute of Applied Sciences & Intelligent Systems); **Abdelmalik Taleb-Ahmed** (University Polytechnic Hauts-de-France)

11:20

7205 (W14.03): MIA-3DCNN: A 3D Convolutional Neural Network for COVID-19 Detection and Severity Classification

Igor Nakashima (Institute of Computing - UNICAMP); **Giovanna Vendramini** (Institute of Computing - UNICAMP); **Helio Pedrini** (Institute of Computing - UNICAMP)

11:35

7215 (W14.05): Ensemble Methods for Enhanced COVID-19 CT Scan Severity Analysis

Anand Thyagachandran (IIT Madras); **Hema A Murthy** (IIT Madras)

11:50

7197 (W14.02): Adversarial Attacks & Detection on a Deep Learning-based Digital Pathology Model

Eleanna Vali (National Technical University of Athens); **Georgios Alexandridis** (National Technical University of Athens); **Andreas Stafylopatis** (National Technical University of Athens)

12:05

7225 (W14.13): COVID-19 Detection from X-Rays Images Using Deep Learning Methods

Georgios Sapountzakis (National Technical University of Athens); **Paraskevi-Antonia Theofilou** (National Technical University of Athens); **Paraskevi Tzouveli** (National Technical University of Athens)

12:20

7221 (W14.11): GloVe-ing Attention: A Multi-modal Neural Learning Approach to Image Captioning

Lars Halvor Anundskås (Norwegian University of Science and Technology); **Hina Afridi** (Norwegian University of Science and Technology); **Adane N. Tarekegn** (Norwegian University of Science and Technology); **Muhammad Mudassar Yamin** (Norwegian University of Science and Technology); **Mohib Ullah** (Norwegian University of Science and Technology); **Saira Yamin** (CUI Wah); **Faouzi Alaya-Cheikh** (Norwegian University of Science and Technology)

12:35 – 12:40 Conclusions – End of Workshop: Stefanos Kollias

Saturday June 10 (10:00 – 10:20 AM); Poster Area: WP-D

Chair: Dimitrios Kollias

WP-D-1

7226 (W14.14): Lung Segmentation Enhances COVID-19 Detection

Robert B Turnbull (University of Melbourne)

W15 6G-USGIC: 6G Ubiquitous Space Ground Integrated Communications

Organizers: **Di Zhang** (*Zhengzhou University, China*)
Gunes Karabulut Kurt (*Polytechnique Montréal, Canada*)
Symeon Chatzinotas (*University of Luxembourg, Luxembourg*)
Yuwei Su (*State Key Laboratory of Space-Ground Integrated Information Technology (SKL-SGIT), China*)

Saturday June 10 (AM-only); Lectures: Nefeli Hall

Chair: Saed Daoud (*University of Luxembourg, Luxembourg*)

8:30 Keynote #1: Prof. Björn Ottersten (*University of Luxembourg*)

Low-Earth Orbit Satellite Constellations – A Game-Changer for Global Connectivity?

9:30

6874 (W15.01): Air-to-Ground Communications Beyond 5G: The Formation Control of UAV Swarm

Xiao Fan (*Sun Yat-sen University*); *Peiran Wu* (*Sun Yat-sen University*); *Minghua Xia* (*Sun Yat-sen University*)

9:45

6938 (W15.02): Cyclic Delay-Doppler Shift: A Simple Transmit Diversity Technique for Delay-Doppler Waveforms in Doubly Selective Channels

Haoran Yin (*Sun Yat-sen University*); *Jiaojiao Xiong* (*Sun Yat-sen University*); *Yu Zhou* (*Sun Yat-sen University*); *Chi Zhang* (*Sun Yat-sen University*); *Di Zhang* (*Zhengzhou University*); *Xizhang Wei* (*Sun Yat-sen University*); *Yanqun Tang* (*Sun Yat-sen University*)

10:00 – 10:30 Coffee-Break

10:30 Keynote #2: Prof. Nikolaos Pappas (*Linköping University*)

From Age of Information to Data Importance and Relevance

11:15

6972 (W15.03): Towards High-Security Ubiquitous IoT Networks Using AI

Neng Ye (*Beijing Institute of Technology*); *Bichen Kang* (*Beijing Institute of Technology*); *Bin Qi* (*Beijing Institute of Technology*); *Xiangyuan Bu* (*Beijing Institute of Technology*); *Jianping An* (*Beijing Institute of Technology*)

11:30

7116 (W15.04): LEO Satellite-based Space Solar Power Systems

Yuan Guo (*University of Cyprus*); *Elio Faddoul* (*University of Cyprus*); *Christodoulos Skouroumounis* (*University of Cyprus*); *Ioannis Krikidis* (*University of Cyprus*)

11:45

7142 (W15.05): Research on Multipath Separation and Parameter Estimation Algorithm Based on DHA

Lilong Hou (*PLA Strategic Support Force Information Engineering University*); *Liang Jin* (*PLA Strategic Support Force Information Engineering University*); *Shuaifang Xiao* (*PLA Strategic Support Force Information Engineering University*); *Yangming Lou* (*PLA Strategic Support Force Information Engineering University*); *Xiaoyan Hu* (*PLA Strategic Support Force Information Engineering University*); *Yajun Chen* (*PLA Strategic Support Force Information Engineering University*)

W16 Ambient AI: Multimodal Wearable Sensor Understanding

Organizers: **Seungwhan Moon** (*Meta Reality Labs, USA*)
Andrea Madotto (*Meta Reality Labs, USA*)
Claudio Gallicchio (*University of Pisa, Italy*)
Elham Barezi (*Michigan State University, USA*)
Wenliang Dai (*Hong Kong University of Science and Technology, Hong Kong SAR*)
Babak Damavandi (*Meta Reality Labs, USA*)

Saturday June 10 (PM-only); Lectures: Delphi; Posters: WP-C

2:00 – 2:40: Oral Session I (Chair: **Seungwhan Moon**)

2:00 Introduction & Opening Remarks: Seungwhan Moon

2:10 Keynote #1: Alessandro Suglia (*Assistant Professor, Heriot-Watt University*)
Multimodal Embodied Models: Enabling Embodied Artificial Agents to Act and Reason Using Multimodal Perception

2:40 – 4:00 Poster Session (**Area: WP-C**) & **Coffee-Break (3:30 – 4:00)**

4:00 – 5:45: Oral Session II (Chair: **Claudio Gallicchio**)

4:00 Keynote #2: Danilo Pau (*Director, Edge AI, ST-Microelectronics*)
Tiny Sensors: What future for them?

4:30 Presentation of Paper W16.02: Dawei Liang (*University of Texas at Austin*)
A Dataset for Foreground Speech Analysis with Smartwatches in Everyday Home Environments

4:45 Presentation of Paper W16.01: Wei Xu (*Huazhong University of Science and Technology*)
A CRNN-GCN Piano Transcription Model Based on Audio and Skeleton Features

5:00 Keynote #3: Kristen Grauman (*Professor, University of Texas at Austin*)
Visual Learning of Sounds in Spaces

5:30 Closing Remarks: Claudio Gallicchio

Saturday June 10 (2:40 – 4:00 PM); Poster Area: WP-C

Chairs: Seungwhan Moon & Claudio Gallicchio

WP-C-1

7138 (W16.02): A Dataset for Foreground Speech Analysis with Smartwatches in Everyday Home Environments

Dawei Liang (The University of Texas at Austin); *Zifan Xu* (The University of Texas at Austin); *Yinuo Chen* (The University of Texas at Austin); *Rebecca Adaimi* (The University of Texas at Austin); *David Harwath* (The University of Texas at Austin); *Edison Thomaz* (The University of Texas at Austin)

WP-C-2

7114 (W16.01): A CRNN-GCN Piano Transcription Model Based on Audio and Skeleton Features

Yuqing Li (Huazhong University of Science and Technology); *Xianke Wang* (Huazhong University of Science and Technology); *Ruimin Wu* (Huazhong University of Science and Technology); *Wei Xu* (Huazhong University of Science and Technology); *Wenqing Cheng* (Huazhong University of Science and Technology)

WP-C-3

7209 (W16.11): Prediction of Driver's Stress Affection in Simulated Autonomous Driving Scenarios

Valerio De Caro (University of Pisa); *Herbert Danzinger* (AVL List GmbH); *Claudio Gallicchio* (University of Pisa); *Clemens Könczöl* (University of Graz); *Vincenzo Lomonaco* (University of Pisa); *Mina Marmpena* (Information Technology for Market Leadership); *Sevasti Politi* (Information Technology for Market Leadership); *Omar Veledar* (Graz University of Technology); *Davide Bacciu* (University of Pisa)

WP-C-4

7212 (W16.13): A Survey of Datasets, Applications, and Models for IMU Sensor Signals

Aparajita Saraf (Meta AI); *Seungwhan Moon* (Meta AI); *Andrea Madotto* (Meta AI)

WP-C-5

7143 (W16.05): Ambient Sleep Quality Analysis with a Machine Learning Model

Mehmet F Bagci (San Diego State University & University of California San Diego); *Truong Nguyen* (University of California San Diego); *Yusuf Ozturk* (San Diego State University)

WP-C-6

7140 (W16.03): Human Activity Recognition from Motion and Acoustic Sensors Using Contrastive Learning

Rui Zhou (The University of Hong Kong); *Running Zhao* (The University of Hong Kong); *Edith Ngai* (The University of Hong Kong)

WP-C-7

7141 (W16.04): A Health Profiling Framework for Children Leveraging Multimodal Learning Based on Ambient Sensor Signals

Zhihan Jiang (The University of Hong Kong); *Cong Xie* (Tencent); *Edith Ngai* (The University of Hong Kong)

WP-C-8

7208 (W16.10): Development of a Pain Signaling System Using Machine Learning

Helen Korving (Vrije Universiteit Amsterdam); *Di Zhou* (Nanjing University of Science and Technology); *Sheng Li* (National Institute of Information & Communications Technology); *Paula Sterkenburg* (Vrije Universiteit Amsterdam); *Panos Markopoulos* (Eindhoven University of Technology); *Emilia Barakova* (Eindhoven University of Technology)

WP-C-9

7211 (W16.12): Symbiotic Artificial Intelligence: Order Picking and Ambient Sensing

Zhe Ming Chng (Georgia Tech); **Calix Tang** (Georgia Tech); **Darshan Krishnaswamy** (Georgia Tech); **Haoyang Yang** (Georgia Tech); **Shivang Chopra** (Georgia Tech); **Jon Womack** (Georgia Tech); **Thad Starner** (Georgia Tech)

WP-C-10

7148 (W16.06): Multimodal Estimation of Change Points of Physiological Arousal during Driving

Kleanthis Avramidis (University of Southern California); **Tiantian Feng** (University of Southern California); **Digbalay Bose** (University of Southern California); **Shrikanth Narayanan** (University of Southern California)

WP-C-12

7149 (W16.07): AI-Toolkit: a Microservices Architecture for Low-Code Decentralized Machine Intelligence

Vincenzo Lomonaco (University of Pisa); **Valerio De Caro** (University of Pisa); **Claudio Gallicchio** (University of Pisa); **Antonio Carta** (University of Pisa); **Christos Sardianos** (Qatar University & Harokopio University of Athens); **Iraklis Varlamis** (Harokopio University of Athens); **Konstantinos Tserpes** (Harokopio University of Athens); **Massimo Coppola** (CNR); **Mina Marpena** (ITML); **Sevasti Politi** (ITML); **Erwin Schoitsch** (AIT); **Davide Bacciu** (Univeristy of Pisa)

WP-C-13

7202 (W16.08): Smart Selection of Useful Insights from Wearables

Allmin Susaiyah (Philips); **Aki Harma** (Philips); **Simone Balloccu** (University of Aberdeen); **Ehud Reiter** (University of Aberdeen); **Milan Petkovic** (Technical University of Eindhoven)

WP-C-14

7203 (W16.09): Enhancing Human Activity Recognition through Sensor Fusion and Hybrid Deep Learning Model

Adane N. Tarekegn (Norwegian University of Science and Technology); **Mohib Ullah** (Norwegian University of Science and Technology); **Faouzi Alaya-Chekh** (Norwegian University of Science and Technology); **Muhammad Sajjad** (Norwegian University of Science and Technology)

W17 AMHAT 2023: Advances in Multimodal Hearing Assistive Technologies

Organizers: Amir Hussain (*Edinburgh Napier University, UK*)
Mathini Sellathurai (*Heriot-Watt University, UK*)
Peter Bell (*University of Edinburgh, UK*)
Katherine August (*Stevens Institute of Technology, USA*)

Sat June 10 (PM-only); Lectures: Salon Des Roses A; Posters: WP-D

Chair: Amir Hussain

1:45 Welcome: Amir Hussain (*Edinburgh Napier University, UK*)
Michael Akeroyd (*University of Nottingham, UK*)

2:00 Keynote #1: Yu Tsao (*Academia Sinica, Taiwan*)
Towards Audio-Visual Speech Enhancement in Real-World Scenarios

2:30 Live Showcase Demo: Mandar Gogate, Kia Dashtipour, Amir Hussain
(*Edinburgh Napier University, UK*)

2:45 Poster Session I (Area **WP-D**)

3:30 – 3:45 Coffee-Break & Networking

3:45 Poster Session II (Area **WP-D**)

4:30 Keynote #2: Peter Derleth (*Sonova AG, Switzerland*)
Technological and Commercial Aspects of Assistive Hearing Solutions

5:00 Talk: Lorena Aldana, Peter Bell (*University of Edinburgh, UK*),
Mandar Gogate, Amir Hussain (*Edinburgh Napier University, UK*)
Introduction to AVSEC-2: The Second International Audio-Visual Speech Enhancement Challenge

5:10 Open Panel Discussion
Moderator: Michael Akeroyd (*University of Nottingham, UK*)

5:45 Close

Poster Session I

Saturday June 10 (2:45 – 3:30 PM); Posters: WP-D

Chair: Tharm Ratnarajah (*University of Edinburgh, UK*)

WP-D-1

6970 (W17.03): Light-Weight VisualVoice: Neural Network Quantization on Audio Visual Speech Separation

Yifei Wu (*Shanghai Jiao Tong University*); **Chenda Li** (*Shanghai Jiao Tong University*); **Yanmin Qian** (*Shanghai Jiao Tong University*)

WP-D-2

7210 (W17.09): Towards Pose-Invariant Audio-Visual Speech Enhancement in the Wild for Next-Generation Multi-Modal Hearing Aids

Mandar Gogate (*Edinburgh Napier University*); **Kia K Dashtipour** (*Edinburgh Napier University*); **Amir Hussain** (*Edinburgh Napier University*)

WP-D-3

6949 (W17.02): A Vision-Assisted Hearing Aid System Based on Deep Learning

Daniel Michelsanti (*Oticon*); **Zheng-Hua Tan** (*Aalborg University*); **Sergi Rotger-Griful** (*Eriksholm Research Centre*); **Jesper Jensen** (*Aalborg University*)

WP-D-4

7057 (W17.04): Requirements for Mass Adoption of Assistive Listening Technology by the General Public

Thomas B Kaufmann (*Arizona State University*); **Mehdi Foroogozar** (*Arizona State University*); **Julie Liss** (*Arizona State University*); **Visar Berisha** (*Arizona State University*)

WP-D-6

7192 (W17.05): Frequency-Domain Functional Links for Nonlinear Feedback Cancellation in Hearing Aids

Alireza Nezamdoust (*Sapienza University of Rome*); **Mandar Gogate** (*Edinburgh Napier University*); **Kia K Dashtipour** (*Edinburgh Napier University*); **Amir Hussain** (*Edinburgh Napier University*); **Danilo Comminiello** (*Sapienza University of Rome*)

Poster Session II

Saturday June 10 (3:45 – 4:30 PM); Posters: WP-D

Chair: Michael Akeroyd (*University of Nottingham, UK*)

WP-D-1

7194 (W17.06): Towards an FPGA implementation of an IoT-based Multimodal Hearing aid System

Godwin Enemali (*Glasgow Caledonian University*); **Abhijeet Bishnu** (*University of Edinburgh*); **Tharmalingam Ratnarajah** (*The University of Edinburgh*); **Tughrul Arslan** (*University of Edinburgh*)

WP-D-2

7199 (W17.07): Towards Individualised Speech Enhancement: An SNR Preference Learning System for Multi-Modal Hearing Aids

Jasper Kirton-Wingate (Edinburgh Napier University); *Shafique Ahmed* (National Tsing Hua University); *Mandar Gogate* (Edinburgh Napier University); *Yu Tsao* (Academia Sinica); *Amir Hussain* (Edinburgh Napier University)

WP-D-3

7207 (W17.08): Socio-Technical Trust for Multi-Modal Hearing Assistive Technology

Jennifer Williams (University of Southampton); *Tayyaba Azim* (University of Southampton); *Anna-Maria Piskopani* (University of Nottingham); *Alan Chamberlain* (University of Nottingham); *Shuo Zhang* (Bose)

WP-D-4

7213 (W17.10): Two-Point Neurons for Efficient Multimodal Speech Enhancement

Mohsin R Naseem (University of Wolverhampton); *Khubaib Ahmed* (University of Wolverhampton); *Junaid Muzaffar* (University of Wolverhampton); *Ahsan Adeel* (deepCI)

WP-D-6

6837 (W17.01): Audio-Visual Speech Enhancement and Separation by Utilizing Multi-Modal Self-Supervised Embeddings

I-Chun Chern (CMU); *Kuo-Hsuan Hung* (Academia Sinica); *Yi-Ting Chen* (Academia Sinica); *Tassadaq Hussain* (Edinburgh Napier University); *Mandar Gogate* (Edinburgh Napier University); *Amir Hussain* (Edinburgh Napier University); *Yu Tsao* (Academia Sinica); *Jen-Cheng Hou* (Academia Sinica)
