ABSTRACT

The Hot Topic “Acoustic Analysis of Speech and Voice” aims at giving a specific glance to the field of human communication with particular reference to the speech technologies and their progresses of the last years. It mainly addresses to PhD students of the linguistic, biological, phoniatric disciplines, as well as to professionals dealing with speech processing, speech therapy, artistic and professional voice and language learning.

The programme of lectures and practical activities aims to explore the linguistic basis of spoken communication, tracing the fundamental distinctions between abstract and concrete units and between phonological properties and acoustic cues within the phonetic substance.

In addition to offering an up-to-date overview of modern speech technologies (from synthesis to recognition), it provides excellent preparation on vocal analysis topics in speech and singing, with references to the media voice and public speaking.

Particular attention will also be paid to tools for data collection models, quantitative investigation of pathological speech corpora and data-driven methods for teaching foreign language pronunciation.

TRAINING FLOW:

Each class is structured into two modules: A theoretical module and a more practical workshop on related topics

1. THEORETICAL

   Singing voice analysis and experimental approaches: Nathalie Henrich Bernardoni (1h30)
   Acoustic analysis and benefits for phonetics and phonology: Barbara Gili Fivela (1h30)
   Speech technologies: Franco Cutugno (1h30)
   Phonetic parameters for dysarthric speech: Helmer Strik (1h00)
   Phonetic parameters for L2 learner speech: Catia Cucchiarini (1h00)

2. PRACTICAL

   Speech technologies for Voice Analysis: Rosario Signorello (1h00)
   Acoustic measures and tools for the analysis of the singing/spoken voice: Paolo Mairano (1h00)
   Speech technologies and scripting: Antonio Origlia (1h00)
   Data analysis of normal and disordered speech: Helmer Strik (0h30)
   Data analysis of L2 learner speech: Catia Cucchiarini (0h30)
## Provisional Calendar

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<th>8th September</th>
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<td>8:30-10</td>
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<td>Phonic parameters for dysarthric speech + Data analysis of normal and disordered speech: Helmer Strik</td>
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<td>10:30-12</td>
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<td>Acoustic analysis and benefits for phonetics and phonology: Barbara Gili Fivela</td>
<td>Phonic parameters for L2 learner speech + Data analysis of L2 learner speech: Catia Cucchiarini</td>
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<td>Lunch</td>
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<td>Plenary keynote: Monika Rychtáríková</td>
<td>Speech technologies: Franco Cutugno</td>
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<td>Singing voice analysis and experimental approaches: Nathalie Henrich Bernardoni</td>
<td>Speech technologies and scripting: Antonio Origlia</td>
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<td>17-18</td>
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<tr>
<td>Speech technologies and Voice Analysis: Rosario Signorello</td>
<td>Acoustic measures and tools for the analysis of the singing/spoken voice: Paolo Mairano</td>
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ACADEMIC TUTORS

Catia Cucchiarini is Senior researcher at the Centre for Language Studies and the Centre for Language and Speech Technology of the Radboud University Nijmegen (The Netherlands). She is member of the Research group 'Language and Speech, Learning and Therapy'. Her main research topics are: Computer Assisted Language Learning, Speech recognition, Phonetics, Second language acquisition.

Franco Cutugno is Associate Professor of NATURAL LANGUAGE PROCESSING and Human-Machine Interaction at the Department of Electrical Engineering and Information Technology (DIETI), University Federico II of Naples. He pursues research activities at the Urban/Eco Interdepartmental Centre and at the PRISCA-Lab (Projects in Intelligent Robotics and Advanced Cognitive Systems). His main scientific topics are Acoustic phonetics, Computational linguistics, Speech processing, Mobile app design and Technological applications in the Cultural Heritage sector.

Barbara Gili Fivela is Associate Professor at the University of Lecce (Italy). Her main scientific topics are Phonetics and Phonology, Prosody and Pragmalinguistics. She is president of the Associazione Italiana Scienze della Voce (AISV - Special Interest Group dell'International Speech and Communication Association - ISCA) and vicedirector of the CRIL (Centro di Ricerca Interdisciplinare sul Linguaggio - Laboratorio Diffuso di Ricerca Interdisciplinare Applicata alla Medicina).

Nathalie Heurich Bernardoni is a Research Director of the French National Center for Scientific Research (CNRS), in its Institute of Human and Social Sciences (INSHS - CNRS). She works at GIPSA-lab in Grenoble, France, a research laboratory affiliated to Université Grenoble Alpes, CNRS and Grenoble INP. Her main scientific topics are Vocology, Physiology and Biomechanics of human vocal-fold, Speech and singing acoustics and signal processing, Voice analysis and synthesis, Ethnomusicology. She is member of MOVE team (Analysis and Modelling of Human in Movement : Biomechanics, Cognition, Vocology).

Paolo Mairano is Associate Professor at University of Lille (France). He teaches English Phonetics and Phonology. His main research topics are Acquisition of phonetics and phonology of an L2, oral corpora in L1 and L2, rhythmic typology of languages, speech synthesis, prosody, linguistic resources.
Antonio Origlia is a Researcher at DIETI (Naples) and teaches Computer Science and Game engines and interactive experience. His research interests include emotion analysis using global and local prosodic features, automatic syllable segmentation, pitch detection and stylisation, speech rate, an adaptive neuro-fuzzy inference system for the qualitative study of perceptual prominence in linguistics.

Rosario Signorello is Computational Linguist at Apple Inc. – Research Associate in Phonetics and Voice Sciences at the Laboratoire de Phonétique et Phonologie of the Université Sorbonne Nouvelle and CNRS (Paris, France).

Helmer Strik is Associate Professor at the Centre for Language Studies (CLS) of the Radboud University Nijmegen (The Netherlands). He is Principal Investigator of the PI group ‘Language and Speech, Learning and Therapy’ at CLST (Centre for Language and Speech Technology). He is also Initiator, co-founder & Chief Scientific Officer at NovoLanguage Nijmegen and occupies the Chair of the ‘Special Interest Group’ (SIG) on ‘Speech and Language Technology in Education’ (SLaTE) at the ‘International Speech Communication Association’ (ISCA).

Industrial partners

AISV (https://www.aisv.it) – AISV - Italian Association for Speech Sciences (Associazione Italiana di Scienze della Voce) is a non-profit organisation established on December 3, 2003. Its statutes were deposited in Padova, Italy, on April, 2004. It is an ISCA (International Speech Communication Association) Special Interest Group.

PerVoice (https://www.pervoice.com/) - A leading speech recognition technology company that has been part of Almawave since 2013, PerVoice operates in the field of Automatic Speech Recognition. Founded in 2007 as a spin-off from FBK’s “Fondazione Bruno Kessler” research laboratories, it was the first Italian technology services company able to offer a portfolio of speech recognition solutions.

Translated (info@translated.com): Translated is a company operating in the field of translation technology and was established in 1999. They have been rewarded on several occasions, including the TAUS Innovation Contest. In 2015, the European Commission awarded our MateCat, and therefore Translated, for one of best AI research projects of the previous 7 years. In 2017, Financial Times indicated them as one of Europe’s fastest-growing companies. Translated contributes to the language industry by making most of its technology open source and accessible to everyone via Translated Labs.
F.A. Chairs’ message

Dear Students and participants to Forum Acusticum 2023,

We are happy to announce that the registration to the next EAA Summer School is open until August 30th.

*Note that the deadline for Grants application is on May 15th.*

We invite you to visit the website for further details on the topics and application procedure:

https://www.fa2023.org/eaa-summer-school

The grants to be awarded will be Free Registration for 10 winners for each Hot Topic.

To be eligible for the travel grants you must meet the following conditions:

- Be a young researcher/student enrolled on a university course (Bachelor, Master, PhD) or already have a Master or PhD degree;
- Be no more than 35 years old on the 31st of December 2023;
- Be a citizen or working in a country with Acoustics National Societies which belong to the EAA;
- Be a member of the country’s National Society (valued but not mandatory).

If you meet the necessary conditions, submit your application!

Please consider the 30th of May as the announcement date for the Grants’ winners.

**How to apply:**

Complete the Registration to the Summer School indicating whether you would you like to be considered for a grant.

This is a highly competitive process for a limited number of grants, ensure you provide all the information requested on the registration form.

Please note that the grants will be given after the summer school attendance.