

International Workshop

Acoustic analysis and synthesis of the singing voice: scientific overview and ASMA tools in vocal pedagogy

(14-15 December 2022, Athens)

(<https://asma.music.uoa.gr>)

The last decade new tools and methods have been developed for investigating the singing vocal qualities, the modeling of the vocal tract during singing as well as the assistance in singing through visual feedback and neural networks.

Singing voice research on vocal pedagogy in the 21st century moves to an interdisciplinary crossroad based on the acoustics of the singing voice, the vocal physiology modeling, the singing performance analysis and the music information retrieval.

This Workshop aims, firstly to communicate the results of the ASMA (Assistance for Students in singing and Music Aesthetics) -a national research project (ELIDEK), on vocal instruction and interaction in the digital classroom- and bring together experts, researchers and practitioners who work on the domain of the singing voice acoustics and technology.

The ASMA research project also involves original and innovative research on the social and aesthetic importance of the student vocal training in primary school for self-expression and awareness of the function of his voice during singing, which will lead to the development of a modern platform with interactive applications in order to assist singing in elementary schools and children's choirs.

ASMA tools support training for correct pronunciation, tonal accuracy, modal correctness (in non-western music), expressiveness, musical rhythm in singing as also the awareness of the singer in room acoustics through augmented instruction. This platform is based on experiential learning and visualization techniques, which lead to the desired results through entertaining, educational processes in the context of collaborative and adaptive learning.

9.30/ Welcome greetings

Professor Achilleas Chaldaiakis, Dean of the School of Philosophy

Professor Anastasia Georgaki, Head of the Music Department, NKUA

9.45/Prof. Johan Sundberg (KTH, Se) “*Timbre contributions and control of the glottal air flow, the raw material of the voice.*”

10.30/ Prof. Claudia Manfredi (UniFI, It) “Study of the singing voice with objective techniques: its usefulness and limits.”

11.00/ Prof Graham Welch (UCL, UK) “Visual feedback Technologies for singing assistance (online)”

11.30/break

12.00/ Prof. Malte Kob (University of Vienna, AU). “Vocal tract resonance analysis using formant and acoustic impedance measurements”

12.30/ Axel Roebel (IRCAM, Fr). “Deep Learning Algorithms for Analysis and Transformation of Singing Style”

13.00/ Prof Henrich Nathalie (GIPSA-lab, Grenoble, Fr) (online) “Source-filter interactions in singing”

13.30.-14.30 Round table: Current trends on the analysis/synthesis of the singing voice in vocal pedagogy

14.30. Light Buffet

Thursday 15/12

9.30-10.30: Evidence based medicine in the care of the singing voice

Prof. Thanos Bibas (School of Medicine, NKUA)

Prof. Ilias Papathanassiou (Department of Speech and Language Therapy, University of Patras)

Eleftheria Iliadou (The Ear Institute, UCL)

10.30-11.00: Singing voice and AI

Prof. Vassilis Katsouros (ILSP, Athena Institute)

11.00/Break

11.30/Prof. Anastasia Georgaki (NKUA): The ASMA Project: assisting singing vocal pedagogy in the digital classroom

12.00-13.00. Areti Andreopoulou, Natalia Kotsani, George Dedousis: The ASMA toolkit box

13.00/ Jacob Steinhauer/Evangelos Angelakis/Sofia Stavropoulou, Kostas Katsantonis: Teachers's Guidebook-
Aesthetics-Somatosensory Learning and Singing Cognition

13.45. ASMA Tools DEMONSTRATION & Discussion

14.30. Light Buffet

More Information on the program and the speaker's CV :

<https://asma.music.uoa.gr>