Curriculum Vitae

Andreas Selamtzis PhD

Scientific interests

Biomechanics and acoustics of voice production, vocology, acoustic phonetics, signal processing, machine learning, instruction of voice production in clinical and educational environments.

Education

PhD in Speech and Music Communication,
KTH Royal Institute of Technology, Stockholm,
Sweden
  Doctoral thesis:
  Analyses of voice and glottographic signals in singing and speech
  Supervisor: Sten Ternström

Jan 2012 –
Dec 2017

M.Sc. Engineering Acoustics, DTU,

Copenhagen, Denmark

Aug 2009 –
Nov 2011

Diploma in Physics, National and Kapodistrian University
of Athens, Greece

Sep 2002 –
Jul 2009

Past and Current Employments

Acoustic consultant, ACAD International AB		Oct 2018 - **present**
PhD student and teaching assistant at KTH, Royal Institute of Technology, Stockholm, Sweden		Jan 2012 – Dec 2017
Teaching assistant in acoustics courses, DTU, Copenhagen, Denmark		Aug 2010 – Aug 2011
Private lessons of mathematics and physics in Athens, Greece		2002 – 2009

Publications

2019

Effect of vowel context in cepstral and entropy analysis of pathological voices.
Selamtzis, A., *Castellana, A., Salvi, G., Carullo, A., & Astolfi, A.*
Biomedical Signal Processing and Control, 47, 350-357.

Update 2.0 to FonaDyn—A system for real-time analysis of the electroglottogram,
over the voice range.
Ternström, S., Johansson, D., & ***Selamtzis, A.***
SoftwareX 10 (2019)

2018

Analyses of voice and glottographic signals in singing and speech
Selamtzis, A.
(Doctoral dissertation, KTH Royal Institute of Technology).

A comparison of electroglottographic and glottal area waveforms for phonation type
differentiation in male professional singers.
Selamtzis, A., *Ternström, S., Richter, B., Burk, F., Köberlein, M., & Echternach, M.*
The Journal of the Acoustical Society of America, 144(6), 3275-3288.

Effects of the lung volume on the electroglottographic waveform in trained female
singers.
Ternström, S., D'Amario, S., & ***Selamtzis, A.***
Journal of Voice, 34 (3), 485.e1-485.e21.

FonaDyn—A system for real-time analysis of the electroglottogram, over the voice range.
Ternström, S., Johansson, D., & ***Selamtzis, A.***
SoftwareX, 7, 74-80.

2017

Investigation of the relationship between electroglottogram waveform, fundamental
frequency, and sound pressure level using clustering.
Selamtzis, A., & Ternström, S.
Journal of Voice, 31(4), 393-400.

Laryngeal evidence for the first and second passaggio in professionally trained sopranos.
Echternach, M., Burk, F., Köberlein, M., ***Selamtzis, A.,*** *Döllinger, M., Burdumy, M., Richter,
B., Herbst, C.T.*
PLoS One 12.5 (2017): e0175865.

Cepstral and entropy analyses in vowels excerpted from continuous speech of dysphonic
and control speakers.
Castellana, A., ***Selamtzis, A.,*** *Salvi, G., Carullo, A., & Astolfi, A.*
In *18th Annual Conference of the International Speech Communication Association,
INTERSPEECH 2017, Stockholm, Sweden* (Vol. 2017, pp. 1814-1818). ISCA.

2014

Analysis of vibratory states in phonation using spectral features of the electroglottographic
signal.
Selamtzis, A., & Ternström, S.
The Journal of the Acoustical Society of America, 136(5), 2773-2783.

Conferences

2017

Classification of phonation mechanisms in professional tenors: a comparison between EGG-
based and GAW-based clustering, *12th Pan-European Voice Conference*, Ghent, Belgium, Aug
30 – Sep 1, 2017. Oral presentation.

Cepstral and entropy analyses in vowels excerpted from continuous speech of dysphonic and

control speakers, *Interspeech 2017*, Stockholm, Sweden, Aug 20 – Aug 24, 2017. Poster, article published in proceedings.

2016
Variation of the Electroglottogram Waveform with Voice Sound Level, *The Voice Foundation's 45th Annual Symposium: Care of the Professional Voice,* Philadelphia, United States of America, Jun 1 – Jun 5, 2016. Oral presentation.

2014
Short-term spectral characteristics of the EGG signal in different registers, 9th *International Conference of Voice Physiology and Biomechanics,* Salt Lake City, United States of America, Apr 10 – Apr 12, 2014. Oral presentation.

2013
Non-invasive automatic detection of phonatory state transitions, 10th *Pan-European Voice Conference 2013*, Prague, Czech Republic, Aug 21 - Aug 24, 2013. Oral presentation.

Teaching
Teaching assistant for **Fundamentals of Acoustics and Noise Control** (1st year graduate) and **Advanced Acoustics** (2nd year graduate), Acoustic Technology, Technical University of Denmark, Copenhagen, Denmark.

Teaching assistant for signal processing courses **Spectral Transforms** and **Sound as Information Carrier**, KTH Royal Institute of Technology, Stockholm, Sweden.

External lecturer for KTH engineering students, as a representative of ACAD International AB consultancy firm.

Languages
Greek, native speaker
English, fluent
Swedish, fluent
Italian, beginner

Research skills
Acoustical measurements, electroglottography, **signal processing**, clustering, nonlinear methods for **voice analysis**, voice maps, pathological voice analysis, custom code development in **MATLAB** for specialized voice analyses.

Other Scientific Activities
Reviewer for:
    Nature Scientific Reports,
    The Journal of Acoustical Society of America,
    Speech Communication,
    Stockholm Music Acoustics Conference 2023,
    Applied Sciences.

Other Interests
Pedagogy of music.
Piano playing, piano tuning and singing.
Chanting of traditional Byzantine Greek Orthodox Church music.

Personal presentation

Academic studies

My research has been driven by my dual interest in music and physics. After studying privately classical piano with prof. Yorgos Manessis and studying physics at the University of Athens, I decided to pursue a MSc degree in Engineering Acoustics which resulted in a thesis on the acoustics of the human voice. Further pursuing my PhD degree at KTH under the supervision of prof. Sten Ternström I had the chance to conduct voice research on singing and speech. My doctoral thesis contributed **novel methods for digital signal processing of voice signals** combined with machine learning. The studies involved **human subjects**, amateur and **professional singers** as well as **normal and dysphonic speakers**. The focus of studying singing subjects was particularly the nature of vocal registers as well as register transitions. The spectral content of the electroglottographic signal was found adequate for describing both the different types of transition as well as the stable regimes of the different registers. It was also found that often large variations of the contact area pattern of the vocal folds do not produce marked differences in the voice signal. In examining healthy and pathological speakers it was found that clinical measures of vocal health require careful consideration for the context of the analyzed signals, since applying the same criteria to vowels from running speech vs sustained vowels can result in erroneous diagnostic findings.

Professional experience

Since my doctoral studies I have been working for five years as an acoustic consultant at an international acoustic consultancy company, ACAD International AB, (Acoustic Consulting and Design). My work has been to plan and execute calculations and measurements of acoustical parameters for newly constructed as well as renovated buildings. The types of buildings include residential buildings, schools, concert halls, music schools. I conduct calculations for sound insulation, structure-borne sound, reverberation time and other relevant acoustic parameters and write technical reports that are submitted to the Swedish authorities for gaining the necessary permits for the construction works to be executed.

Il sottoscritto Andreas Selamtzis, nato a Atene, il 31/07/1984 residente a Stoccolma, Svezia, dichiara quanto segue:

Tutto quanto indicato nel Curriculum Vitae corrisponde al vero ai sensi dell'art. 46 del D.P.R. 445/2000.

In fede,

Stoccolma, 21 aprile 2024

Firma