

# Nikolaos (Nikos) Flemotomos

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RESEARCH INTERESTS Speaker Diarization and Role Recognition, Speech Recognition, Machine Learning

EDUCATION **Ph.D., Electrical Engineering** started Aug 2016  
University of Southern California, Los Angeles, CA, U.S.A.  
Current GPA: 3.95/4.00

**M.Sc., Electrical Engineering** Dec 2018  
University of Southern California, Los Angeles, CA, U.S.A.  
GPA: 4.00/4.00

**Diploma (5-years degree), Electrical and Computer Engineering** Apr 2016  
National Technical University of Athens, Athens, Greece  
Thesis: *Robust Acoustic Features for Distant Speech Recognition*  
GPA: 9.34/10.00

WORKING EXPERIENCE **University of Southern California**, Los Angeles, CA, U.S.A  
Signal Processing and Interpretation Laboratory (SAIL)  
*Graduate Research Assistant* May 2017 to present  
*Supervisor*: Prof. Shrikanth Narayanan

- Combining Speaker Role Recognition (SRR) with other speech processing modules (e.g. diarization, speech recognition) in order both to improve the performance of SRR itself and to provide useful information to the modules it is combined with.
- Leading a subgroup that develops a real-world system which, after processing recordings of psychotherapy sessions, gives feedback to the therapist. The system is used for computer-aided therapist training.

**Czech Technical University in Prague**, Prague, Czech Republic  
Biomedical Data and Signal Processing Group (BioDat)  
*Research Intern* Mar 2016 to Jun 2016  
*Supervisor*: Assoc. Prof. Lenka Lhotska

- Developed a novel algorithm for automatic sleep staging from polysomnographic signals, motivated by ideas used in speech recognition.

**National Technical University of Athens**, Athens, Greece  
Computer Vision, Speech Communication and Signal Processing Group (CVSP)  
*Undergraduate Research Assistant* Feb 2015 to Mar 2016  
*Supervisor*: Prof. Petros Maragos

- Explored the Teager-Kaiser energy operator for energy estimation in speech signals.
- Developed and tested a system for single-microphone distant speech recognition, comparing various acoustic feature sets, with an emphasis on those based on the AM-FM speech model.

SOFTWARE SKILLS **Programming Languages:**  
Python, UNIX shell scripting, MATLAB, C  
C++, Java, ML, R, Prolog, SQL *extensive experience familiarity*

**Tools & Libraries:**  
Kaldi, OpenFST, Tensorflow, Keras, SRILM, L<sup>A</sup>T<sub>E</sub>X

CONFERENCE PUBLICATIONS	<ol style="list-style-type: none"> <li>1. <b>N. Flemotomos</b>, P. Georgiou, D.C. Atkins, and S. Narayanan, “Role Specific Lattice Rescoring for Speaker Role Recognition from Speech Recognition Outputs”, <i>ICASSP 2019</i>. (submitted)</li> <li>2. <b>N. Flemotomos</b>, Z. Chen, D.C. Atkins, and S. Narayanan, “Role Annotated Speech Recognition for Conversational Interactions”, <i>2018 IEEE SLT Workshop</i>. (accepted)</li> <li>3. <b>N. Flemotomos</b>, P. Papadopoulos, J. Gibson, and S. Narayanan, “Combined Speaker Clustering and Role Recognition in Conversational Speech”, <i>Proc. Interspeech 2018</i>.</li> <li>4. <b>N. Flemotomos</b>, V.R. Martinez, J. Gibson, D.C. Atkins, T.A. Creed, and S. Narayanan, “Language Features for Automated Evaluation of Cognitive Behavior Psychotherapy Sessions”, <i>Proc. Interspeech 2018</i>.</li> <li>5. K. Singla, Z. Chen, <b>N. Flemotomos</b>, J. Gibson, D. Can, D.C. Atkins, and S. Narayanan, “Using Prosodic and Lexical Information for Learning Utterance-level Behaviors in Psychotherapy”, <i>Proc. Interspeech 2018</i>.</li> </ol>
GRADUATE COURSEWORK	Mathematics of High-Dimensional Data, Machine Learning Theory, Deep Learning, Machine Learning from Signals, Pattern Recognition, Statistics, Probability, Random Processes
AWARDS AND DISTINCTIONS	<p><b>Annenberg Ph.D Fellowship</b> Aug 2016 to present University of Southern California</p> <p><b>Travel Grant</b> Sep 2018 International Speech Communication Association (ISCA)</p> <p><b>Honorable Mention</b> Sep 2010 4th International Olympiad on Astronomy and Astrophysics, Beijing, China</p>
TEACHING EXPERIENCE	<p><b>Society of Astronomy and Space</b>, Volos, Greece <i>Teaching Assistant</i> Summer 2011 &amp; 2012 Preparation for the International Olympiad on Astronomy and Astrophysics</p>
SERVICE AND VOLUNTARY WORK	<p><b>Hellenic Student Association of USC</b> Student volunteer and board member Jan 2018 to present</p> <p><b>IEEE Engineering in Medicine &amp; Biology Society NTUA Student Chapter</b> President Sep 2014 to Jun 2015 Student volunteer Sep 2013 to Jun 2014</p> <p><b>7th International Olympiad on Astronomy and Astrophysics</b> Student volunteer Aug 2014</p> <p><b>Greek Astronomy Magazine ‘Ouranos’ (‘Sky’)</b> Member of the writing team Sep 2012 to Mar 2015</p> <p><b>AEGEE-Athina</b> politically independent student organisation aiming at a democratic, diverse Europe Volunteer Sep 2012 to Sep 2013</p>
LANGUAGES	<p><b>Greek</b>, Native Speaker <b>English</b>, Proficient Level <i>Certificate of Proficiency in English</i> <b>French</b>, Intermediate Level <i>Diplôme Approfondi de Langue Française (DALF C1-C2)</i> <b>Japanese</b>, Beginner Level <i>Level N5 of the Japanese-Language Proficiency Test</i></p>