

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.

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

- Exploring neural embeddings and alternative clustering approaches for speaker diarization.
- 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.

Microsoft Research, Bellevue, WA, U.S.A.

Speech and Dialog Research Group

Research Intern

May 2019 to Aug 2019

Supervisor: Dr. Dimitrios Dimitriadis

- Worked on speaker identification and diarization in meeting scenarios.

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	<i>extensive experience familiarity</i>
	Tools & Libraries: Kaldi, OpenFST, Tensorflow, Keras, SRILM, L ^A T _E X	
GRADUATE COURSEWORK	Computational Social Sciences, Mathematics of High-Dimensional Data, Machine Learning Theory, Deep Learning, Machine Learning from Signals, Pattern Recognition, Statistics, Probability, Random Processes	
TEACHING EXPERIENCE	University of Southern California , Los Angeles, CA, U.S.A. <i>Teaching Assistant</i> Speech Recognition and Processing for Multimedia	Spring 2019 & 2020
	Society of Astronomy and Space , Volos, Greece <i>Teaching Assistant</i> Preparation for the International Olympiad on Astronomy and Astrophysics	Summer 2011 & 2012
AWARDS AND DISTINCTIONS	Annenberg Ph.D. Fellowship University of Southern California	Aug 2016 to present
	Travel Grant International Speech Communication Association (ISCA)	Sep 2018
	Honorable Mention 4th International Olympiad on Astronomy and Astrophysics, Beijing, China	Sep 2010
JOURNAL PUBLICATIONS	1. S.B. Goldberg, N. Flemotomos , V.R. Martinez, M. Tanana, P. Kuo, B.T. Pace, J.L. Villatte, P. Georgiou, J. Van Epps, Z.E. Imel, S. Narayanan, and D.C. Atkins (in press). “Machine Learning and Natural Language Processing in Psychotherapy Research: Alliance as Example Use Case”, <i>Journal of Counseling Psychology</i> .	
CONFERENCE PROCEEDINGS	1. N. Flemotomos , P. Georgiou, and S. Narayanan. “Linguistically Aided Speaker Diarization Using Speaker Role Information”, <i>Proc. Odyssey</i> , 2020. 2. N. Flemotomos , and D. Dimitriadis. “A Memory Augmented Architecture for Continuous Speaker Identification in Meetings”, <i>Proc. ICASSP</i> , 2020. 3. T.J. Park, M. Kumar, N. Flemotomos , M. Pal, R. Peri, R. Lahiri, P. Georgiou, and S. Narayanan. “The Second DIHARD Challenge: System Description for USC-SAIL Team”, <i>Proc. Interspeech</i> , 2019 4. V.R. Martinez, N. Flemotomos , V. Ardulov, K. Somandepalli, S.B. Goldberg, Z.E. Imel, D.C. Atkins, and S. Narayanan. “Identifying Therapist and Client Personae for Therapeutic Alliance Estimation”, <i>Proc. Interspeech</i> , 2019. 5. N. Flemotomos , P. Georgiou, D.C. Atkins, and S. Narayanan, “Role Specific Lattice Rescoring for Speaker Role Recognition from Speech Recognition Outputs”, <i>Proc. ICASSP</i> , 2019. 6. N. Flemotomos , Z. Chen, D.C. Atkins, and S. Narayanan, “Role Annotated Speech Recognition for Conversational Interactions”, <i>Proc. SLT</i> , 2018. 7. N. Flemotomos , P. Papadopoulos, J. Gibson, and S. Narayanan, “Combined Speaker Clustering and Role Recognition in Conversational Speech”, <i>Proc. Interspeech</i> , 2018. 8. N. Flemotomos , 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</i> , 2018.	

9. K. Singla, Z. Chen, **N. Flemotomos**, J. Gibson, D. Can, D.C. Atkins, and S. Narayanan, “Using Prosodic and Lexical Information for Learning Utterance-level Behaviors in Psychotherapy”, *Proc. Interspeech*, 2018.

PEER REVIEWER	42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2020) Behavior Research Methods
SERVICE AND VOLUNTARY WORK	Hellenic Student Association of USC Student volunteer and board member Jan 2018 to May 2019 IEEE Engineering in Medicine & Biology Society NTUA Student Chapter President Sep 2014 to Jun 2015 Student volunteer Sep 2013 to Jun 2014 7th International Olympiad on Astronomy and Astrophysics Student volunteer Aug 2014 Greek Astronomy Magazine ‘Ouranos’ (‘Sky’) Member of the writing team Sep 2012 to Mar 2015 AEGEE-Athina politically independent student organisation aiming at a democratic, diverse Europe Volunteer Sep 2012 to Sep 2013
LANGUAGES	Greek , Native Speaker English , Proficient Level <i>Certificate of Proficiency in English</i> French , Intermediate Level <i>Diplôme Approfondi de Langue Française (DALF C1-C2)</i> Japanese , Beginner Level <i>Level N5 of the Japanese-Language Proficiency Test</i>
REFERENCES	Available upon request.