Nikolaos (Nikos) Flemotomos

Ming Hsieh Department of Electrical Engineering

University of Southern California

3710 McClintock Ave., Room RTH 317

Los Angeles, CA 90089

✉ flemotom@usc.edu

📞 +1 213 421 7498

🌐 nikosfl.github.io

in /in/nikosfl

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

- 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

- 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

- 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

- 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   *extensive experience*
C++, Java, ML, R, Prolog, SQL   *familiarity*

Tools & Libraries:
Kaldi, OpenFST, Tensorflow, Keras, SRILM, LaTeX

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.
Teaching Assistant Spring 2019
Speech Recognition and Processing for Multimedia

Society of Astronomy and Space, Volos, Greece
Teaching Assistant Summer 2011 & 2012
Preparation for the International Olympiad on Astronomy and Astrophysics

AWARDS AND DISTINCTIONS

Annenberg Ph.D. Fellowship Aug 2016 to present
University of Southern California

Travel Grant Sep 2018
International Speech Communication Association (ISCA)

Honorable Mention Sep 2010
4th International Olympiad on Astronomy and Astrophysics, Beijing, China

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", *Journal of Counseling Psychology*, 2019.

CONFERENCE PROCEEDINGS

1. **N. Flemotomos**, P. Georgiou, and S. Narayanan. "Language Aided Speaker Diarization Using Speaker Role Information", *submitted to ICASSP*, 2020.

2. **N. Flemotomos**, and D. Dimitriadis. "A Memory Augmented Architecture for Continuous Speaker Identification in Meetings", *submitted to ICASSP*, 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", *Proc. Interspeech*, 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", *Proc. Interspeech*, 2019.

5. **N. Flemotomos**, P. Georgiou, D.C. Atkins, and S. Narayanan, "Role Specific Lattice Rescoring for Speaker Role Recognition from Speech Recognition Outputs", *Proc. ICASSP*, 2019.

6. **N. Flemotomos**, Z. Chen, D.C. Atkins, and S. Narayanan, "Role Annotated Speech Recognition for Conversational Interactions", *Proc. SLT*, 2018.

7. **N. Flemotomos**, P. Papadopoulos, J. Gibson, and S. Narayanan, "Combined Speaker Clustering and Role Recognition in Conversational Speech", *Proc. Interspeech*, 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", *Proc. Interspeech*, 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.

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	*Certificate of Proficiency in English*
	French, Intermediate Level	*Diplôme Approfondi de Langue Française (DALF C1-C2)*
	Japanese, Beginner Level	*Level N5 of the Japanese-Language Proficiency Test*
REFERENCES	Available upon request.	