Giorgos Paraskevopoulos

Nationality: Greek **Date of birth:** 17 Sep 1991 **Email address:** georgepar.91@gmail.com

Website: https://scholar.google.com/citations?hl=en&user=arK20HUAAAAJ **Website:** https://georgepar.github.io/

ABOUT ME

Giorgos Paraskevopoulos received his Integrated Master degree in Electrical Engineering and Computer Science from the National Technical University of Athens in June 2016. Since 2017 he has been a PhD student in NTUA, under the supervision of Prof. Alexandros Potamianos. His PhD thesis is in the area of Multimodal Representation Learning and Fusion. He has industry experience both as a software engineer (Intracom Telecom) and as a machine learning engineer (Behavioral Signals). In 2019 and 2022 he worked as an applied research intern with the Alexa team in Amazon Lab126 and AWS AI Labs. Since 2020 he is an associate researcher at the Institute for Speech and Language Processing, Athena RC. He has co-authored over 20 publications, in international peer-reviewed conferences and journals, with over 500 citations. Giorgos is an IEEE/SPS student member and has served as a reviewer in top-tier conferences, such as ACL, AAAI and ICASSP. He is an active open-source contributor. He has participated in European research projects, (AI4EDU, Safety4All, Babyrobot). His research interests revolve around the extraction and fusion of multimodal representations, cognitively-inspired architectures and adaptation of neural networks to unseen domains.

RELEVANT WORK EXPERIENCE

Associate Researcher (Institute for Speech and Language Processing)

[Jul 2020 – Current]

Projects: AI4EDU, Safety4All, Greek Speech Recognition service, Theano, NLP services

Higher education teaching assistant (National Technical University of Athens)

[Aug 2017 – Current]

Courses: Pattern Recognition, Speech and Language Processing, Signals and Systems

Applied Research Intern (Amazon)

[Jun 2022 – Sep 2022]

Sunnyvale, United States, AWS AI Labs. IEEE ICASSP Publication: Multi-scale Compositional Constraints for Representation Learning on Videos

Machine Learning Engineer (Behavioral Signals)

[Aug 2017 – Apr 2020]

Athens, Greece. Worked on the development of Emotion Recognition and ASR models, their adaptation to new domains, and their integration into production services. Also worked on the deployment of production services, Continuous Integration and establishing code review processes.

Applied Research Intern (Amazon)

[Jul 2019 – Oct 2019]

Sunnyvale, United States, Alexa group, Lab 126. ACL Publication: Multimodal and Multiresolution Speech Recognition with Transformers

Research Assistant

[Apr 2017 – May 2019]

Babyrobot EU Project: Design and development of components for affective processing of children speech and integration into a unified micro-service architecture.

SDN/NFV R&D Engineer (Intracom Telecom)

[Jun 2015 – Apr 2017]

Worked on the scalability of the OpenDaylight SDN Controller and contributed to the OPNFV open-source project

Research Assistant (NCSR Demokritos)

[Dec 2014 – Oct 2016]

Developed my thesis project for Gesture-based control of a smart room. Publications: "A real-time approach for gesture recognition using the Kinect sensor" & "Real-time arm gesture recognition using 3D skeleton joint data"

EDUCATION AND TRAINING

PhD Student
National Technical University of Athens [31 Aug 2017 – Current]

Address: 9, Iroon Polytechniou St, 15780 Athens (Greece)
Website: https://www.ece.ntua.gr/
Field(s) of study: Information and Communication Technologies
Level in EQF: EQF level 8
Thesis: Extraction of deep multimodal representations and application in learning from limited data

My PhD thesis is related to my ongoing work on extracting multimodal representations from audio, text and image data. Emphasis is given on techniques involving Transfer learning and Domain adaptation.

Integrated Master (5-year degree)
National Technical University of Athens [31 Aug 2009 – 31 May 2016]

Address: 9, Iroon Polytechniou St, 15780 Athens (Greece)
Website: https://www.ece.ntua.gr/
Field(s) of study: Electrical & Computer Engineering
Final grade: 7.7 – **Level in EQF:** EQF level 7
Type of credits: ECTS – **Number of credits:** 300
Thesis: Smart Room Gesture Control using Kinect skeletal data

- Signal Processing, Control & Robotics subjects: (Pattern Recognition, Speech & Language Processing, Computer Vision, Control Systems etc.)
- Computer Science subjects: (Algorithms, Programming Languages, Operating Systems etc.)

ACADEMIC ACTIVITIES

Reviewing Service

ICASSP | ACM / IEEE TASL-P | ACL | AAAI | ASRU | ICMI | ACM Multimedia

Mentoring & Collaborations (MT: Master's Thesis, I: Internship)

Constantinos Karouzos (MT, 2020), Maria-Vassiliki Nikandrou (MT, 2017), Danai Ksezonaki (MT, 2018), Myron Sampsakis-Bakopoulos (MT 2021), Georgios Rouvalis (MT, 2022) , Emmanouil Zaranis (MT, 2021), Odysseas Chlapanis (MT, 2022), Ilias Triantafylopoulos (MT, 2022), Theodoros Kouzelis (I, 2020)

Selected Publications

[1] Paraskevopoulos G., Kouzelis T., Rouvalis G., Katsamanis A., Katsouros V., Potamianos A., "Sample-Efficient Unsupervised Domain Adaptation of Speech Recognition Systems: A case study for Modern Greek", under major revision IEEE/ACM TASL-P, 2023

[2] Paraskevopoulos G., Lavania C., Chum L., Sundaram S., "Multi-scale Compositional Constraints for Representation Learning on Videos", In Proc. IEEE ICASSP 2023

[3] Chlapanis O., Paraskevopoulos G., Potamianos A., "Adapted Multimodal BERT with Layer-wise Fusion for Sentiment Analysis", In Proc. IEEE ICASSP 2023

[4] Paraskevopoulos G., Georgiou E., Potamianos A., "MMLatch: Bottom-up Top-down Fusion for Multimodal Sentiment Analysis", In Proc. IEEE ICASSP 2022

[5] Paraskevopoulos G., Pistofidis P., Georgiou E., Katsouros V., "Multimodal Classification of Safety Report Observations". Applied Sciences 12.12: 5781, 2022

[6] Georgiou E., Paraskevopoulos G., Potamianos A. “M3: MultiModal Masking applied to sentiment analysis”, In Proc. Interspeech, 2021

[7] Karouzos C., Paraskevopoulos G., Potamianos A. “UDALM: Unsupervised Domain Adaptation through Language Modeling”, In Proc. NAACL, 2021

[8] Paraskevopoulos G., Parthasarathy S., Khare A., Sundaram S. “Multimodal and Multiresolution Speech Recognition with Transformers”. In Proc. ACL, 2020

[9] Chatziagapi A., Paraskevopoulos G., Sgouropoulos D., Pantazopoulos G., Nikandrou M., Giannakopoulos T., Katsamanis A., Potamianos A., Narayanan S. “Data Augmentation using GANs for Speech Emotion Recognition”. In Proc. Interspeech, 2019

[10] Paraskevopoulos G., Tzinis E., Ellinas N., Giannakopoulos T., Potamianos A. “Unsupervised lowrank representations for speech emotion recognition”. In Proc Interspeech, 2019

[11] Paraskevopoulos G., Tzinis E., Vlatakis E., Potamianos A. “Pattern Search Multidimensional Scaling”, CoRR preprint, 2018

[12] Baziotis C., Athanasiou N., Chronopoulou A., Kolovou A., Paraskevopoulos G., Ellinas N., Narayanan S., Potamianos A. “NTUA-SLP at SemEval-2018 Task 1: Predicting Affective Content in Tweets with Deep Attentive RNNs and Transfer Learning”. In Proc. Semeval Workshop, In conjunction with NAACL, 2018

All Publications

[13] Kouzelis T., Paraskevopoulos G., Katsamanis A., Katsouros V., "Weakly-supervised Forced Alignment of Disfluent Speech Using Phoneme-level Modelling", In Proc. Interspeech 2023

[14] Sartzetaki C., Paraskevopoulos G., Potamianos A., "Extending Compositional Attention Networks for Social Reasoning in Videos", in Proc. Interspeech 2022

[15] Bastas G., Kaliakatsos-Papakostas M., Paraskevopoulos G., et al., "Towards a DHH Accessible Theater: Real-Time Synchronization of Subtitles and Sign Language Videos with ASR and NLP Solutions". In Proc. PETRA, 2022

[16] Georgiou E., Kritsis K., Paraskevopoulos G., Katsamanis A., Katsouros V., Potamianos A., "Regotron: Regularizing the Tacotron2 architecture via monotonic alignment loss", in Proc. 2022 IEEE Spoken Language Technology Workshop (SLT), 2022 [Best paper candidate]

[17] Kouni V., Paraskevopoulos G., Rauhut H., Alexandropoulos GC. "ADMM-DAD net: a deep unfolding network for analysis compressed sensing", In Proc. IEEE ICASSP, 2022

[18] Zaranis E., Paraskevopoulos G., Katsamanis A., Potamianos A., “EmpBot: A T5-based Empathetic Chatbot focusing on Sentiments”, CoRR preprint, 2021

[19] Melistas T., Giannakopoulos T., Paraskevopoulos G. “Lyrics and Vocal Melody Generation conditioned on Accompaniment”, In Proc. NLP4MusA Workshop, 2021

[20] Ventoura N., Vassilakis Y., Palios K., Paraskevopoulos G., Katsamanis A., Katsouros V. “Theano: A Greek-speaking conversational agent for COVID-19”, In Proc. NLP for Positive Impact Workshop, 2021

[21] Xezonaki D., Paraskevopoulos G., Potamianos A., Narayanan S. “Affective Conditioning on Hierarchical Attention Networks applied to Depression Detection from Transcribed Clinical Interviews”, In Proc. Interspeech, 2020

[22] Paraskevopoulos G., Spyrou E., Sgouropoulos D., Giannakopoulos T., Mylonas P. “Real-time arm gesture recognition using 3D skeleton joint data”. Algorithms, 12(5), p.108, 2019

[23] Tzinis E., Paraskevopoulos G., Baziotis C., and Potamianos A. “Integrating Recurrence Dynamics for Speech Emotion Recognition”. In Proc. Interspeech, 2018

[24] Baziotis C., Athanasiou N., Kolovou A., Paraskevopoulos G., Ellinas N., Potamianos A. “NTUA-SLP at SemEval-2018 Task 2: Predicting Emojis using RNNs with Context-aware Attention”. In Proc. Semeval Workshop, in conjunction with NAACL, 2018

[25] Baziotis C., Nikolaos A., Papalampidi P., Kolovou A., Paraskevopoulos G., Ellinas N., and Potamianos A., “NTUA-SLP at SemEval-2018 Task 3: Tracking Ironic Tweets using Ensembles of Word and Character Level Attentive RNNs”. In Proc. Semeval Workshop, in conjunction with NAACL, 2018

[26] Paraskevopoulos G., Karamanolakis G., Iosif E., Pikrakis A., Potamianos A., “Sensory-Aware Multimodal Fusion for Word Semantic Similarity Estimation”. In Proc. MultiLearn2017 Workshop, in conjuction with EUSIPCO, 2017

[27] Paraskevopoulos G., Spyrou E., Sgouropoulos D., “A Real-Time Approach for Gesture Recognition Using the Kinect Sensor”. In Proc. SETN, 2016

PROJECTS

Kaldi gRPC Server

[Current]

This is a modern alternative for deploying Speech Recognition models developed using Kaldi. (github)

slp

[Current]

A framework to develop models for natural language and speech processing. (github)

DIGITAL SKILLS

Programming Languages

Python / C++ / JavaScript / Go / C / Shell Script (Bash)

Frameworks / Libraries

SpaCy / Fairseq / Scikit-Learn / Numpy / JAX: Autograd and XLA / PyTorch Lightning / NLTK / PyTorch / Kaldi