Giannis Karamanolakis

Department of Computer Science
Columbia University
610 West 115th Street
New York, NY 10025

Phone: +1 (917) 331-8844
E-mail: gkaraman@cs.columbia.edu
WWW: https://gkaramanolakis.github.io
Office: Mudd 406, DSI, Columbia University (map)

Research Interests

Machine learning, Data Mining, Natural Language Processing and Understanding, Deep Learning, Probabilistic Modeling, Active Learning, Audio & Music Signal Processing, Weakly Supervised Learning.

Education

Ph.D. Computer Science, Columbia University, 09/2017 - now.

Advisors: Prof. Luis Gravano, Prof. Daniel Hsu.

Research Areas: Information Extraction, Natural Language Processing, Machine Learning.

Active Involvement in Groups: Machine Learning Group, Database Research Group, NLP Group.

Main Projects: Adaptive Information Extraction from Social Media for Actionable Inferences in Public Health (submission to WSDM 2019), Deep Learning for Recommender Systems (paper at DLRS 2018).

M.Sc. - Computer Science, Columbia University, 09/2017 - now.

Current GPA: 4.26/4.00.

Courses: Machine Learning, Natural Language Programming, Analysis of Algorithms, Advanced Machine Learning for Personalization, Intro to Databases, Foundations of Graphical Models.

M.Eng. Electrical and Computer Engineering, National Technical University of Athens, 09/2011 - 07/2017.

Major: Computer Science, GPA: 9.26/10.00 (top 2%).

Advisor: Prof. Alexandros Potamianos.

Thesis: "Grounding Word Semantic Representations to Acoustic and Visual Perceptual Modalities".

Professional and Research Experience

Machine Learning Engineer, 04/2016 - 08/2017
Behavioral Signals, Los Angeles, US (working remotely from Athens, Greece).

Trained statistical models for the recognition of core emotions, moods and behaviors from conversational speech data. Used speaker interaction patterns to predict Key Performance Indicators. Applied Active Learning and Semi-Supervised Learning algorithms for information extraction from recorded speech data and the corresponding transcriptions.

Research Assistant, 01/2016-06/2017.
Institute for Language & Speech Processing, "Athena" Research & Innovation Center, Athens, Greece.
Supervisors: Alexandros Potamianos, Aggelos Gkiokas, Vassilis Katsouros.

Carried out research under Audio Signal Processing and Multimedia Information Retrieval. Applied Deep Learning for the fusion of multimodal (text, audio, visual) semantic representations.

Research Intern, 11/2015-2/2016
Computational Intelligence Laboratory, National Center of Scientific Research "Demokritos", Athens, Greece.
Supervisors: Theodoros Giannakopoulos, Stavros Perantonis.

Carried out research and developed code in the context of "Audio Analysis for Soundscape Event Detection and Quality Estimation using Machine Learning Methods".

Publications

Giannis Karamanolakis, Daniel Hsu, and Luis Gravano. Submission to WSDM 2019 (long paper - double blind). In summary, we employ Multiple Instance Learning (MIL) in deep learning models (CNNs & RNNs) for sentence-level classification without using sentence-level ground-truth labels. Instead, we use review-level labels as a weak source of supervision. We propose to estimate the MIL aggregation function using a sigmoid attention mechanism. We apply our proposed model for the fine-grained sentiment analysis of reviews, and for the discovery of foodborne illness in online restaurant reviews..

Giannis Karamanolakis, Kevin Raji Cherian, Ananth Ravi Narayan, Jie Yuan, Da Tang, and Tony Jebara. **Item Recommendation with Variational Autoencoders and Heterogenous Priors**. In *RecSys 2018 Workshop on Deep Learning for Recommender Systems*, 2018.

Georgios Paraskevopoulos, **Giannis Karamanolakis**, Elias Iosif, Aggelos Pikrakis, and Alexandros Potamianos. **Sensory-Aware Multimodal Fusion for Word Semantic Similarity Estimation**. In *EUSIPCO 2017 Workshop on Multimodal Processing, Modeling, and Learning Approaches for Human-Computer/Robot Interaction (Multi-Learn)*, 2017.

Giannis Karamanolakis, Elias Iosif, Athanasia Zlatintsi, Aggelos Pikrakis, and Alexandros Potamianos. **Audio-based distributional semantic models for music auto-tagging and similarity measurement**. In *EUSIPCO 2017 Workshop on Multimodal Processing, Modeling, and Learning Approaches for Human-Computer/Robot Interaction (Multi-Learn)*, 2017.

Giannis Karamanolakis, Elias Iosif, Athanasia Zlatintsi, Aggelos Pikrakis, and Alexandros Potamianos. **Audio-Based Distributional Representations of Meaning Using a Fusion of Feature Encodings**. In *INTERSPEECH*, pages 3658–3662, 2016.

Fellowships, Honors, and Awards

Gerondelis Foundation Scholarship, New York, US, 06/2018.

Joseph F. Traub Fellowship, Columbia University, New York, US, 04/2018.

Addressing the Opioid Epidemic, Design Challenge Award, Columbia University, New York, US, 12/2017.

Columbia Engineering Presidential Fellowship, New York, US, 08/2017 - 05/2022.

Eurobank EFG Scholarship, Athens, Greece, 06/2012.

Hellenic Mathematic Society "Euclides" Award, Sitia, Greece, 03/2010.

Hellenic Mathematic Society "Thales" Award, Sitia, Greece, 02/2009.