Giannis Karamanolakis

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Research Interests

Machine Learning, Information Extraction, Natural Language Processing, Deep Learning.

Professional and Research Experience

Graduate Research Assistant   09/2017 - now
Columbia University, Department of Computer Science, New York, NY, United States.

- Working on project: "Adaptive Information Extraction from Social Media for Actionable Inferences in Public Health", advised by Prof. Luis Gravano and Prof. Daniel Hsu (pending conference submission).
- Working on side Machine Learning projects (papers at DLRS @ RecSys 2018, ML4Creativity @ NIPS 2018).
- Actively participating in the Machine Learning Group, NLP Group, and Database Research Group.

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

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

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

- Applied Deep Learning for the fusion of multimodal (text, audio, visual) semantic representations.

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

- Developed audio-based classifiers for Soundscape Event Detection and Quality Estimation.

Education

Ph.D. in Computer Science   09/2017 - now
Columbia University, New York, NY, United States.

- **Advisors:** Prof. Luis Gravano, Prof. Daniel Hsu.
- **Current GPA** (class requirements): 4.26/4.00.
- **Research Areas:** Machine Learning, Information Extraction, Natural Language Processing.

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

   - **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".

Publications

Giannis Karamanolakis, Daniel Hsu, and Luis Gravano. Pending submission to a data mining conference (long paper - double blind). In summary, we employ Multiple Instance Learning (MIL) in hierarchical deep learning models (CNNs & RNNs) for fine-grained text mining. We propose a new attention-based mechanism for the MIL aggregation function and apply our model to sentence-level sentiment classification and to the discovery of foodborne illness in online restaurant reviews.

Katy Ilonka Gero, **Giannis Karamanolakis**, and Lydia Chilton. **Transfer Learning for Style-Specific Text Generation**. In *NIPS 2018 Workshop on Machine Learning for Creativity and Design (to appear)*, 2018.

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" & "Thales" Awards, Sitia, Greece 02/2009, 03/2010

Technical Skills

Programming: Python (PyTorch, Tensorflow, Keras), C++, Java, MATLAB, R, C.

Agile Development & Project Management: Git, JIRA, Jenkins, Scrum, Kanban.