

Giannis Karamanolakis

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Research Interests

Machine Learning, Information Extraction, Natural Language Processing, Deep Learning, Active Learning, Semi/Weakly-Supervised Learning, Cross-Lingual Learning, Semantic Parsing, Question Answering.

Professional and Research Experience

6. **Graduate Research Assistant** 09/2017 - now
Columbia University, Department of Computer Science, New York, NY, United States.
Advisors: Luis Gravano, Daniel Hsu
 - Developing weakly-supervised learning algorithms for text classification (LLD'19, WNUT'19, EMNLP'19/20, LOUHI'20).
 - Deploying systems for "Information Extraction from Social Media for Actionable Inferences in Public Health" (NSF).
5. **Research Scientist Intern** 05/2020 - 08/2020
Microsoft Research AI, Redmond, WA, United States.
Supervisors: Ahmed Awadallah, Subho Mukherjee, Guoqing Zheng (Language & Information Technologies team).
 - Developed a semi-supervised learning framework for self-training with weak supervision (NAACL '21 paper).
4. **Applied Scientist / Machine Learning Scientist Intern** 05/2019 - 12/2019
Amazon.com, Seattle, WA, United States.
Supervisor: Xin Luna Dong (Product Graph team).
 - Developed TXtract, a neural network for *large-scale* knowledge extraction from product descriptions (ACL'20 paper).
 - Improved product understanding through 15% higher coverage in knowledge graph construction (KDD'20 paper).
3. **Machine Learning Engineer** 04/2016 - 08/2017
Behavioral Signals, Los Angeles, United States (worked remotely from Athens, Greece).
 - Trained statistical models for the recognition of core emotions/performance indicators from conversational speech.
2. **Research Assistant** 01/2016 - 06/2017
"Athena" Research & Innovation Center, Institute for Language & Speech Processing, Athens, Greece.
Supervisors: Alexandros Potamianos, Aggelos Gkiokas, Vassilis Katsourous.
1. **Research Intern** 11/2015 - 2/2016
NCSR "Demokritos", Computational Intelligence Laboratory, Athens, Greece.
Supervisors: Theodoros Giannakopoulos, Stavros Perantonis.

Education

2. **Ph.D. in Computer Science** 09/2017 - now
Columbia University, New York, NY, United States.
 - **Advisors:** Prof. Luis Gravano, Prof. Daniel Hsu. **Current GPA:** 4.26/4.00.
1. **M.Eng. in Electrical & Computer Engineering** 09/2011 - 07/2017
National Technical University of Athens, Athens, Greece.
 - **Advisor:** Prof. Alexandros Potamianos. **GPA:** 9.26/10.00 (top 2%).
 - **Thesis:** "Grounding Word Semantic Representations to Acoustic and Visual Perceptual Modalities".

Selected Publications

11. **Giannis Karamanolakis**, Subhabrata Mukherjee, Guoqing Zheng, and Ahmed Hassan Awadallah. **Self-Training with Weak Supervision**. In *NAACL*, 2021 (To Appear).
10. **Giannis Karamanolakis**, Daniel Hsu, and Luis Gravano. **Cross-Lingual Text Classification with Minimal Resources By Transferring a Sparse Teacher**. In *Findings of EMNLP*, 2020.
9. Ziyi Liu, **Giannis Karamanolakis**, Daniel Hsu, and Luis Gravano. **Detecting Foodborne Illness Complaints in Multiple Languages Using English Annotations Only**. In *EMNLP Workshop on Health Text Mining and Information Analysis*, 2020 (Oral).
8. **Giannis Karamanolakis**, Jun Ma, and Xin Luna Dong. **TXtract: Taxonomy-Aware Knowledge Extraction for Thousands of Product Categories**. In *ACL*, 2020 (Oral).
7. Xin Luna Dong, ..., **Giannis Karamanolakis**, ..., Christos Faloutsos, Andrew McCallum, and Jiawei Han. **AutoKnow: Self-Driving Knowledge Collection for Products of Thousands of Types**. In *KDD*, 2020 (Oral).
6. **Giannis Karamanolakis**, Daniel Hsu, and Luis Gravano. **Leveraging Just a Few Keywords for Fine-Grained Aspect Detection Through Weakly Supervised Co-Training**. In *EMNLP*, 2019 (Oral).
5. **Giannis Karamanolakis**, Daniel Hsu, and Luis Gravano. **Weakly Supervised Attention Networks for Fine-Grained Opinion Mining and Public Health**. In *EMNLP Workshop on Noisy User-generated Text*, 2019 (Oral).
4. **Giannis Karamanolakis**, Daniel Hsu, and Luis Gravano. **Training Neural Networks for Aspect Extraction Using Descriptive Keywords Only**. In *ICLR 2nd Workshop on Learning from Limited Labeled Data*, 2019.
3. Katy Ilonka Gero, **Giannis Karamanolakis**, and Lydia Chilton. **Transfer Learning for Style-Specific Text Generation**. In *NeurIPS Workshop on Machine Learning for Creativity and Design*, 2018.
2. **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 Workshop on Deep Learning for Recommender Systems*, 2018 (Oral).
1. **Giannis Karamanolakis**, Elias Iosif, Athanasia Zlatintsi, Aggelos Pikrakis, and Alexandros Potamianos. **Audio-Based Distributional Representations of Meaning Using a Fusion of Feature Encodings**. In *INTER-SPEECH*, 2016 (Oral).

Fellowships, Honors, and Awards

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| 8. Leventis Foundation Scholarship , New York, US | 08/2019, 08/2020 |
| 7. Ph.D. Service Award , Columbia University, New York, US | 05/2019 |
| 6. Gerondelis Foundation Scholarship , New York, US | 06/2018 |
| 5. Joseph F. Traub Fellowship , Columbia University, New York, US | 04/2018 |
| 4. Addressing the Opioid Epidemic, Design Challenge Award , Columbia University, New York, US | 12/2017 |
| 3. Columbia Engineering Presidential Fellowship , New York, US | 08/2017 - 05/2022 |
| 2. Eurobank EFG Scholarship , Athens, Greece | 06/2012 |
| 1. Hellenic Mathematic Society “Euclides” & “Thales” Awards , Sitia, Greece | 02/2009, 03/2010 |

Technical Skills and Reviewer Activity

- **Programming:** Python (PyTorch, Tensorflow, Keras, Pyro), C++, Java, MATLAB, R, C.
- **Agile Development & Project Management:** Git, JIRA, Jenkins, Scrum, Kanban.
- **Reviewer Activity:** ICML '21, NeurIPS '19/20, ACL '19/21, TKDD'19, WWW'19, IEEE-TETCI'18, CSL'17.