

Hrayr Harutyunyan

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EDUCATION

University of Southern California

PhD in Computer Science

Advisors: Aram Galstyan and Greg Ver Steeg

Coursework:

- CSCI 670: Advanced analysis of algorithms, Fall 2018
- EE 546: Mathematics of high-dimensional data, Fall 2018
- DSO 699: Statistical learning theory, Spring 2018
- CSCI 699: Advanced topics in deep learning, Spring 2018
- CSCI 699: Theoretical machine learning, Fall 2019
- CSCI 699: Topics in Discrete Optimization and Learning, Fall 2020

Teaching assistantship:

- CSCI 670: Advanced analysis of algorithms, Fall 2019
- CSCI 270: Introduction to Algorithms and Theory of Computing, Spring 2020

Aug. 2018 - present

Current GPA: 4.0

Yerevan State University

MSc in Discrete Mathematics and Theoretical Informatics

Thesis: Extension of linear CorEx for time series

Advisor: Anahit Chubaryan

Sept. 2016 - June 2018

GPA: 19.9/20

Yerevan State University

BSc in Computer Science and Applied Mathematics

Thesis: Spoken language identification with deep learning

Advisor: Armen Andreasyan

Sept. 2012 - June 2016

GPA: 19.6/20

EXPERIENCE

Amazon.com, Inc

Applied Scientist Intern

Project: Information content of samples

- Defining and estimating the unique information content of samples in supervised learning tasks

May 2020 - Aug. 2020

USC Information Sciences Institute

Graduate Research Assistant

Project: Global analysis of weak signals for enterprise event detection

- Detecting network attacks and malicious activity using temporal covariance estimation and graph embedding methods

Aug. 2018 - Dec. 2019

YerevaNN Research Lab

Machine Learning Researcher

The main topics of my research were:

- Establishing benchmarks for clinical prediction tasks
- Automated question answering using deep learning
- Representation learning with generative models

June 2016 - July 2018

Projects I worked on:

- Learning disentangled representations via synergy minimization
- Temporal covariance estimation using non-overlapping Gaussian latent factor models

RESEARCH

- [1] **H. Harutyunyan**, A. Achille, G. Paolini, O. Majumder, A. Ravichandran, R. Bhotika, S. Soatto. Estimating informativeness of samples with Smooth Unique Information. *ICLR, 2021*
- [2] **H. Harutyunyan**, K. Reing, GV. Steeg, A. Galstyan. Improving Generalization by Controlling Label-Noise Information in Neural Network Weights. *ICML, 2020*
- [3] GV. Steeg, **H. Harutyunyan**, D. Moyer, A. Galstyan. Fast structure learning with modular regularization. *NeurIPS, 2019*
- [4] **H. Harutyunyan**, H. Khachatrian, DC. Kale, GV. Steeg, A. Galstyan. Multitask learning and benchmarking with clinical time series data. *Nature Scientific Data, 2019*.
- [5] **H. Harutyunyan**, D. Moyer, H. Khachatrian, GV. Steeg, A. Galstyan. Efficient covariance estimation from temporal data. *arXiv:1905.13276, 2019*
- [6] S. Abu-El-Haija, B. Perozzi, A. Kapoor, N. Alipourfard, K. Lerman, **H. Harutyunyan**, GV. Steeg, A. Galstyan. MixHop: higher-order graph convolutional architectures via sparsified neighborhood mixing. *ICML, 2019*
- [7] GV. Steeg, R. Brekelmans, **H. Harutyunyan**, A. Galstyan. Disentangled representations via synergy minimization. *Allerton Conference on Communication, Control, and Computing (Allerton), 2017*.

SKILLS

Programming Languages	Python, C/C++, SQL
Software & Tools	PyTorch, Theano, Tensorflow, Keras, Numpy, Scikit-Learn, LaTeX, MATLAB, Wolfram Mathematica
Languages	Armenian (native), English, Russian

AWARDS, HONORS AND ACHIEVEMENTS

USC Annenberg Graduate Fellow	2018
ACM ICPC World Finals, Finalist	2017
Google HashCode, Finalist	2017, 2018
Russian Code Cup, Finalist	2016
Yerevan State University Gold Medal	2016
For outstanding results in programming competitions	
ACM ICPC Northeastern European Regional Contest	
First Diploma, 17th place	2016
Second Diploma, 33th place	2015

Champion of Armenia	2013 - 2016
Champion of Southern Caucasus	2015, 2016
Open Southern Caucasus Championship , First Diploma	2013 - 2016
Independence Cup of Armenia , First Place	2013 - 2017
International Olympiad in Informatics , Bronze medal	2012
National Olympiads in Physics, Mathematics and Informatics 2 First, 2 Second, 3 Third Degree Diplomas	2008 - 2012

NOTABLE ACTIVITIES

ACM ICPC Trainings at USC <i>Lecturer</i>	Fall 2018
Weekly Machine Learning Seminars <i>Co-organizer</i> Presented and discussed recent advances in machine learning.	Sept. 2017 - July 2018
National Olympiad in Informatics <i>Committee member</i> Prepared tasks for the national Olympiad in informatics. Trained students for international Olympiad in informatics.	2013 - 2018
NSF-FAST Machine Learning for Discovery Sciences Workshop <i>Speaker</i> Section: New Voices, Title: Temporal covariance estimation	Oct. 2017
International Olympiad in Informatics <i>Deputy leader of Armenian national team</i> Trained students for the competition.	2016

INTERESTS

Reading, art house, philosophy, skiing, chess, music, billiards.