

Erik Arakelyan

MACHINE LEARNING RESEARCHER

☎ (+374) 77-666-472 | ✉ erik.a@di.ku.dk | 🌐 [osoblanco](https://osoblanco.com) | 🔗 [erik-arakelyan-a6a84470](https://github.com/erik-arakelyan-a6a84470) | 🐦 [@_kire_kara_](https://twitter.com/_kire_kara_)

Education

UCPH (University of Copenhagen)

Copenhagen, Denmark

PHD IN MACHINE LEARNING

Sep. 2021 - present

- Working on topics related to explainable AI, NLP and Knowledge Graphs
- Supervisor: Isabelle Augenstein

UCL (University College London)

London, UK

MSC IN MACHINE LEARNING

Sep. 2018 - 2019

- Obtained a Distinction for the completion of the degree as a 1st class honours.
- [Masters Thesis: \(ICLR 2021 Oral, Outstanding Paper Award\): "Complex Query Answering with Neural Link Predictors"](#)
- Supervisor: Pasquale Minervini

AUA (American University of Armenia)

Yerevan, Armenia

B.S. IN COMPUTER SCIENCE

Sep 2014 - 2018

- Got a full scholarship from the Ministry of Education given to top students in the CS department
- [Final Project: "Automated Custom Named Entity Recognition and Disambiguation"](#)
- Supervisor: Adam Bittlingmayer

Publications

EACL 2024

[Arxiv Link](#)

ORAL, OUTSTANDING PAPER AWARD

"Semantic Sensitivities and Inconsistent Predictions: Measuring the Fragility of NLI Models". We propose a novel framework for assessing semantic sensitivity within transformer-based language models, systematically study the influence of this phenomenon on inconsistent predictions across various transformer variants and show that the effect is persistent and pronounced across both *in-* and *out-of-domain* evaluations.

NeurIPS 2023

[Arxiv Link](#)

ORAL

CQD^A - "Adapting Neural Link Predictors for Data-Efficient Complex Query Answering". We present a novel method for answering complex queries that include conjunctions, disjunctions and negations within Knowledge Graphs. We use a small adaptation layer on top of neural link predictors to calibrate them for reasoning over complex queries.

ACL 2023

[Arxiv Link](#)

ORAL

TESTED - "Topic-Guided Sampling For Data-Efficient Multi-Domain Stance Detection". We present a novel, efficient sampling and training method that bolsters state-of-the-art results both in and out of the domain, showing strong generalization across various stance detection benchmarks.

ICLR 2021

[Arxiv Link](#)

ORAL, OUTSTANDING PAPER AWARD

CQD - "Complex Query Answering with Neural Link Predictors". We propose a framework for efficiently answering complex queries on incomplete Knowledge Graphs. We translate each query into an end-to-end differentiable objective, where the truth value of each atom is computed by a pre-trained neural link predictor.

Experience

Visiting Researcher

Bellevue, WA, USA

AMAZON

Aug. 2023 - Jan. 2024

- Working on Grounded LLM Reasoning and Knowledge Based Completion at Alexa AI. Amazon AGI.
- Creating scalable pipelines for experimentation and inference over KGs
- Researching multi-hop reasoning with retrieval based augmentation over LLMs

ML Integration Lead

AIMSTACK

- Leading the integration team
- Integrating the Aim tracker into industry standard frameworks: Huggingface, PyTorch, PL, Pytorch Ignite, Keras, MonAI, FairSeq, spaCy, Ludwig
- Contributing to the speed and memory optimization of Aim tracker tool
- Researching Efficient Deep Learning methods

Yerevan, Armenia

Nov. 2021 - Sep. 2022

Machine Learning Researcher | Tech-Lead

ARM LTD

- Tech Leading a team in Applied Machine Learning (AML) Team for tailoring DL models
- Implementing ML pipelines as a part of the AML team
- Researching Efficient Deep Learning methods
- Developing Models for various NLP tasks
- Developing Models for image processing

Cambridge, UK

Nov. 2020 - Nov. 2021

Senior Machine Learning Researcher

UNDP ARMENIA SDG LAB

- Implementing innovative solutions for improving public policy decision making
- Created a platform for Real-time analysis and prediction of current touristic activities in Armenia
- Creating Deep Learning models for continuous analysis of Time-series, images and text
- Creating pipelines for continuous Scraping
- Creating optimised flow for Database management an ETL

Yerevan, Armenia

Oct. 2019 - Oct. 2020

Teaching Associate

AMERICAN UNIVERSITY OF ARMENIA

- Teaching Associate of the Deep Learning course at AUA
- Conducting weekly Problem Solving Sessions
- Conducting weekly programming labs
- Conducting Final Project and Bachelor Capstone guidance
- Composing and Grading Homework/Exams

Yerevan, Armenia

Jan. 2020 - May 2020

Machine Learning Engineer

TEAMABLE LLC

- Created an end-to-end pipeline for automated CV parsing and analysis
- Developing Models for various NLP tasks (NER, Semantic parsing, Topic detection etc.)
- Developing Models for image processing
- Developing Flask/Django Apps for integration

Yerevan, Armenia

Sep. 2017 - Sep. 2018

Teaching Associate

AMERICAN UNIVERSITY OF ARMENIA

- Teaching Associate of the Data Structure course at AUA
- Conducting weekly Problem Solving Sessions
- Conducting weekly programming labs
- Composing and Grading Homework/Exams

Yerevan, Armenia

Sep. 2017 - Jan. 2018

Software Engineering Consultant

WOLFRAM RESEARCH AND DEVELOPMENT

- Created and end-to-end TTS pipeline
- Developed Software in the Signal Processing Team
- Created builds for different projects
- Optimized structure/flow in different projects

Yerevan, Armenia

Sep. 2016 - Sep. 2017

Skills

Programming	Python, C/C++, Lua, Prolog, Wolfram Mathematica, MATLAB, Algorithm Design, R
Machine Learning	TensorFlow, Keras, PyTorch, Chainer, OpenCV, Knowledge Graphs, Math Modeling
Databases	SQL, NoSQL, MongoDB, Scraping, BeautifulSoup, Selenium
Languages	English, Russian, Armenian

Grants & Awards

2023	Grant Winner , NEC Laboratories Europe (NEC) Fellowship	70.000 €
2024	Outstanding Paper Award , EACL 2024, for "Semantic Sensitivities and Inconsistent Predictions"	Valletta, Malta
2021	Outstanding Paper Award , ICLR 2021, for "Complex Query Answering with Neural Link Predictors"	Vienna, Austria
2017	Winner , Best Student in The Sphere of IT (Presidential Award)	Yerevan Armenia
2017	Winner , Fintegration Hackathon organised by Microsoft and Nasdaq	Yerevan Armenia
2016-2017	Finalist , ACM ICPC North-Eastern European Regional Contest	Tbilisi, Georgia
2016	Staff Picked Project , Wolfram Summer School	Yerevan Armenia
2016	Winner , Best University Project in AUA	Yerevan Armenia
2011	Winner , Annual competition for woodwind instruments at Romanos Melikyan music school	Yerevan Armenia

Presentations

Fifth Summer School on Mathematics and Applications at YSU

Yerevan, Armenia

PRESENTER

Aug. 2018

- Lectured and held workshops on NLP topics

ICLR 2021

Vienna, Austria

PRESENTER

2021

- Presented "Complex Query Answering with Neural Link Predictors", which won the Outstanding Paper Award in ICLR 2021.

Russian Armenian Slavonic University AI LAB

Yerevan, Armenia

PRESENTER

Sep. 2021

- Held workshops and hands on programming sessions for Machine Learning students

Armenian Code Academy

Yerevan, Armenia

ADJUNCT LECTURER

Nov. 2021

- Taught the NLP section of the Advanced Machine Learning specialization

Extracurricular Activity

DeepLanguageClass

Yerevan, Armenia

NLP TEAM MEMBER

Aug. 2017

- Created Models for Armenian Transliteration
- Create pipelines for Armenian Lemmatization and semantic segmentation
- Worked on improving Armenian word embeddings
- Held NLP workshops and sessions

Russian Armenian Slavonic University (RAU) AI LAB

Yerevan, Armenia

LECTURER

Sep. 2019

- Conducted Weekly ML Reading Groups
- Presented Novel Researches and Implementations
- Lectured in Supervised Learning topics

FastEnt

Yerevan, Armenia

FOUNDER

Dec 2018

- Created A pipeline for Automated Custom Named Entity Recognition and Disambiguation
- Created pipelines for continuous scraping and dataset generation

Romanos Melikyan Music School

Yerevan Armenia

STUDENT

- Learned music theory and playing the flute as a classical musician