Elham Aghakhani

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Education

PhD **Drexel University**, Information Science   Jan 2024 - Now
- **Coursework:** Foundations of Human-centered Computing, Qualitative Research Methods, Quantitative Research Methods, Foundations of Data Science

MS **K.N Toosi University of Technology**, Computer Science   Oct 2020 - Sep 2023
- GPA: 4/4.0
- **Coursework:** Machine Learning, Pattern Recognition, Big Data Analysis, Reinforcement Learning
- **Thesis:** Text Summarization using Pre-trained Language Models and Reinforcement Learning.

BS **K. N. Toosi University of Technology**, Computer Science   Sep 2015 - Sep 2019
- **Thesis:** Implementing an Automatic System to Collect News from News Agencies.

Research Interests

- **Natural Language Processing**
- **Computational Social Science**
- **Machine Learning**

Publications

- Bouzouba L, **Aghakhani E**, Rezapour R (2025). *Phenotypes of stigma expressed by people who use drugs on Reddit.* **(Under review at Social Science and Medicine, Elsevier)**.

- Namvarpour M*, **Aghakhani E***, Ekstrand MD, Rezapour R, Razi A. (2025). *The Evolving Landscape of Youth Online Safety: Insights from News Media Analysis*. **WebSci'25**.
*Equal contribution.

- **Aghakhani E**, Wang L, Washington KT, Demiris G, Huh-Yoo J, Rezapour R. (2025) From Conversation to Automation: Leveraging Large Language Models to Analyze Strategies in Problem Solving Therapy. arXiv preprint arXiv:2501.06101. 2025 Jan 10. The 63rd Annual Meeting of the Association for Computational Linguistics (**ACL**) Findings.

- Bouzoubaa L, **Aghakhani E**, Rezapour R. (2024). Words Matter: Reducing Stigma in Online Conversations about Substance Use with Large Language Models. In Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (**EMNLP**) Nov 2024.

- Bouzoubaa L, **Aghakhani E**, Song M, Trinh M, Rezapour R. (2024). Decoding the Narratives: Analyzing Personal Drug Experiences Shared on Reddit. The 62nd Annual Meeting of the Association for Computational Linguistics (**ACL**) Findings.

Experience

Drexel University, Research Assistant
PA, USA
Jan 2024 - Now
- Played a pivotal role in a research initiative to identify and mitigate stigmatizing language in social media discussions about people who use drugs, using Large Language Models (LLMs) to detect and rephrase such content. (Published in EMNLP2024 Main)
- Designed and developed classification models to distinguish diverse narratives related to Substance Use Disorder (SUD) on Reddit, managing the methodological framework for the project. (Published in ACL2024 Findings)
- Leading a project analyzing therapist-patient conversation transcripts, using Large Language Models (LLMs) to assess their effectiveness in annotation tasks. (Under Review)
- Contributed to a research project focused on extracting and analyzing news from multiple agencies to evaluate framing patterns, with a specific emphasis on online child safety portrayals. (Under Review)

K. N. Toosi University, Teaching assistant
Tehran, Iran
Nov 2021 - July 2022
- Teaching assistant in 'Probabilistic Graphical Models' graduate course
- Teaching assistant in 'Machine Learning' graduate course
- Teaching assistant in 'Statistical Pattern Recognition' graduate course

ERON Company, Developer
Tehran, Iran
Sep 2019 - Mar 2020
- Designing and building databases, web applications, and webpages using backend technologies.

VADA House of Mobile, Developer
Tehran, Iran
Jan 2019 – Sep 2019
- Design and Implement Web Applications and APIs with PHP, Laravel

Projects

Persian Question-Answering with T5
- A Question Answering model for persian QA dataset. In this project, T5 model is fine-tuned for Question Answering task using HuggingFace Transformers, pytorch Lightning & Python.
- Repo: https://github.com/elhamaghakhani/Persian-Question-Answering-with-T5

Shereno: A Dataset of Persian Modernist Poetry
- Web scraped from shereno.com, a large corpus of Persian modernist poems. Along with each poem, its metadata have also been scraped such as poem name, poet name and its book name.
- Repo: https://www.kaggle.com/datasets/elhamaghakhani/persian-poems

Sentiment Analysis of Google Play Reviews by BERT
- In this project we BERT is fine-tuned for the task of sentiment analysis of Google Play reviews. the required text preprocessing (special tokens, padding, and attention masks) and building a Sentiment Classifier using the amazing Transformers library by HuggingFace is implemented.
- Repo: https://github.com/elhamaghakhani/Review-Analysis-by-BERT

Job Searching website
- A job searching and posting website, implemented with PHP programming language, laravel framework and front-end web development skills. In this website, users can register, login as well as post a job or search through posted jobs by filters.
- Github Repo: https://github.com/elhamaghakhani/job_search

Awards, Fellowships, and Highlights

Selected to attend the 8th Annual Summer Institute in Computational Social Science, University of Pennsylvania

Philadelphia, PA
July 2024

Certifications

Natural Language Processing, Coursera (Aug 2021):
- Credential ID: 5WUJGRXXP22V

Machine learning in python with scikit-learn, France Universite Numerique (Jul 2021):
- Credential ID: 4TD52DHM5TCD

Deep Learning workshop, IEEE Iran section (Mar 2021):
- Credential ID: 147474

Technologies

Languages: Python, Java, SQL

Libraries: Pytorch, Keras, Scikit-Learn, HuggingFace, Numpy, Pandas