Zhivar Sourati

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Education

Ph.D. Computer Science | University of Southern California, USA, CA | 2022 – Now

Focus on NLP, Knowledge Graphs, and Commonsense Reasoning (GPA: 4.0 / 4.0)

B.Sc. Computer Engineering | University of Tehran, Iran, Tehran | 2017 - 2021

Thesis: Comparison of the Performance of Permutation and Randomization Tests on Graphs (GPA: 4.0 / 4.0)

Research & Work Experience

Research Assistant | Information Science Institute (ISI / USC) | 2022 – Now

Research on NLP with a great focus on commonsense reasoning and knowledge graphs; fallacy identification based on case-based and prototype-based reasoning; analogical reasoning and analogy generation.

NLP Research Assistant | Zurich University of Applied Sciences | 2021 – 2022

Analysis of automatic summarization techniques, both extractive and abstractive using transformers and knowledge graphs; hate speech analysis and prediction on Twitter timelines.

Research Assistant | University of Tehran | 2020 – 2021

Focused on the applications of machine learning, social network analysis, and non-parametric and permutation tests on complex networks with models such as Exponential Random Graphs (ERGM). Also, used different data mining techniques, mainly directed on Twitter and Elasticsearch, to mine and analyze Farsi and English tweets.

NLP Research Intern | TeIAS | 2020

Explored NLP models, datasets, and common tasks such as NER and QA chatbots on practical projects and literature review on SOTA models. Also contributed and gathered Datasets for Farsi (Persian) Natural Language Processing.

Publications & Posters

- Sourati, Z., Ilievski, F., Sandlin, H.-Â., & Mermoud, A. (2023). Case-Based Reasoning with Language Models for Classification of Logical Fallacies. (Under review)
- Sourati, Z., Priya, V., Deshpande, D., Rawlani, H., Ilievski, F., Sandlin, H.-Â., & Mermoud, A. (2023). Robust and Explainable Identification of Logical Fallacies in Natural Language Arguments. (Published at KBS)
- Thakur, A., Ilievski, F., Sandlin, H., Mermoud, A., Sourati, Z., Luceri, L., & Tommasini, R. (2023). Multimodal and Explainable Internet Meme Classification. (Published at AAAI-23)
- Shabani Mirzaei, T., Chamani, H., Sourati, Z. & Bahrak, B. (2022). A Large-Scale Analysis of Persian Tweets Regarding Covid-19 Vaccination. (Under review)
- Sourati, Z., Sabri, N., Chamani, H. & Bahrak, B. (2022). Quantitative analysis of fanfictions' popularity. Soc. Netw. Anal. Min. 12, 42. https://doi.org/10.1007/s13278-021-00854-9

- Setayesh, A., Sourati, Z. & Bahrak, B. (2022). Analysis of the global trade network using exponential random graph models. Appl Netw Sci 7, 38. https://doi.org/10.1007/s41109-022-00479-7
- Chamani, H., Sourati, Z., & Bahrak, B. (2021). An Overview of Regression Methods in Early Prediction of Movie Ratings, 11th International Conference on Computer Engineering and Knowledge (ICCKE), pp. 1-6, doi: 10.1109/ICCKE54056.2021.9721453
- Sourati, Z., von Däniken, P., Cieliebak, M. (2022). Ukraine-Russia - First insights into recent Twitter posts about this conflict. SwissText Conference; June 2022; Lugano, Switzerland. (Poster presentation)
- Von Däniken, P., Sourati, Z., Tuggener, D. (2022). Hateful Social Media Users - Can we predict their behavior? SwissText Conference; June 2022; Lugano, Switzerland. (Poster presentation)

Notable Course Projects

Transcript Analyzer & Converter

An API capable of retrieving dialogues, converting them from and to different transcript structures such as CEASR, and doing various analyses on it, including summarization with methods such as abstractive transformer-based models and extractive methods using knowledge graphs.

Permutation Tests

Analyzed various permutation techniques on complex networks, such as node and network permutations. Also, used different modeling approaches such as Exponential Random Graph Models (ERGMs) to study complex networks like the global trade network.

Neural Networks & Advanced NLP

Studied different architectures covering transformers, memory neural networks, and convolutional neural networks, as well as a brief study of generative adversarial networks. Also, focused on more traditional NLP techniques on applications such as dependency tree parsing as well.

Reinforcement Learning

Studied various models and policies, such as n-armed bandits, On- and Off-policy methods with practical usage like analyzing the monetary value of waiting utilizing Prospect theory by Daniel Kahneman.

Artificial Intelligence

Learned the basic ideas in AI, such as clustering, classification, and regression models, as well as searching algorithms like A* and IDS, and analyzed their applicability on different datasets.

Advanced Programming

Learned different design patterns and clean coding principles by implementing programs covering diverse subjects such as resource management, social networks, and file compression & cryptography.

Skills

- Python, R, C, C++, SQL, Java, Typescript, SPARQL
- PyTorch, Hugging Face, Weights & Biases, Keras, Stata, Linux, Spring, Angular, Git, MongoDB, Node js., MySQL