Zhivar Sourati

souratih@isi.edu (+1 818 877 3590)

Education

2022-Now **Ph.D. Computer Science**, *University of Southern California*, USA, CA
Focus on commonsense reasoning with NLP and Knowledge Graphs

2017-2021 **B.Sc., Computer Engineering**, *School of Electrical and Computer Engineering, University of Tehran*, Iran, Tehran
GPA - 4.0 / 4.0

Research & Work Experience

2022 - Now **Research Assistant**, *Dr. Filip Ilievski*, Information Science Institute (ISI)
Research on NLP with a great focus on the applications of commonsense reasoning as well as exploiting knowledge graphs. Moreover, fallacy identification based on methods like case-based reasoning and prototype learning.

2021 - 2022 **NLP Research Assistant**, *Prof. Mark Cieliebak* & *Dr. Don Tuggener*, Zurich University of Applied Sciences
Analysis of automatic summarization techniques, both extractive and abstractive using transformers and knowledge graphs; and also hate speech analysis and prediction on Twitter timelines.

2020 - 2021 **Research Assistant**, *Dr. Behnam Bahrak*, University of Tehran
Focused on the applications of machine learning and social network analysis as well as non-parametric and permutation tests on complex networks with models such as Exponential Random Graphs (ERGM). Also, used different data mining techniques mostly directed on Twitter and Elasticsearch to mine and analyze Farsi and English tweets.

2020 **NLP Research Intern**, *Dr. Mohammad Taher Pilehvar*, TeIAS
Explored different NLP models, datasets, and common tasks such as NER and QA chatbots in a hands-on context as well as literature review on SOTA models. Also contributed and gathered Datasets for Farsi (Persian) Natural Language Processing.

2019 - 2020 **Front-end Developer**, Tapsell Co.
- Developed the landing pages for two of the products owned by the company, Tagrow, and Metrix.
- Developed various features for the customer and management dashboard in the Tapsell product.

Publications

2022 Sourati, Z., Priya, V., Deshpande, D., Rawlani, H., Ilievski, F., Sandlin, H.-Â., & Mermoud, A. (2022). Robust and Explainable Identification of Logical Fallacies in Natural Language Arguments.(under review)

2022 Thakur, A., Ilievski, F., Sandlin, H., Mermoud, A., Sourati, Z., Luceri, L., & Tommasini, R. (2022). Multimodal and Explainable Internet Meme Classification. (recently accepted)

2022 Shabani Mirzaei, T., Chamani, H., Sourati , Z. & Bahrak, B. (2022). A Large-Scale Analysis of Persian Tweets Regarding Covid-19 Vaccination. (under review)

2022 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

2022 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

2021 Chamani, H., Sourati , Z., & Bahrak, B. (2021). An Overview of Regression Methods in Early Prediction of Movie Ratings, *2021 11th International Conference on Computer Engineering and Knowledge (ICCKE)*, pp. 1-6, doi: 10.1109/ICCKE54056.2021.9721453.

Notable Course Projects

2022 **Transcript Analyser & Converter**
An API capable of retrieving dialogues, convert them from and to different transcript structures such as CEASR, and do various analyses on it including summarization with different methods such as abstractive like BART-based models & KeyBERT and extractive methods as well as searching in the dialogues.

2021 **Permutation Tests**
Leveraged various permutation techniques, such as node permutation and network permutation, to analyze their accuracy and efficiency on complex networks. Also, used different simulation and modeling approaches such as Exponential Random Graph Models (ERGMs) to study complex networks like the global trade network.

2021, 2022 **Neural Networks & Advanced NLP**
Learned about different neural networks and architectures covering memory neural networks, convolutional neural networks as well as a brief study of generative adversarial networks. Plus, using variations of these models to compare their effectiveness both in Vision and NLP focusing on models like GRU, BERT-based models, Inception models as well as U-nets.

2020 **Reinforcement Learning**
Studied variety of models and policies discussed in RL such as n-armed bandits, On-policy methods, and Off-policy methods with their practical usage and examples such as in famous jack's rental car problem and monetary value of waiting utilizing Prospect theory by Daniel Kahneman.

2019 **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.

2018 **Advanced Programming**
Learned different design patterns and clean coding principles by implementing a handful of programs covering diverse subjects such as hotel management, social networks, and file compression & cryptography.

Posters & Presentations

2022 Sourati , Z., von Däniken, P., Cieliebak, M., Ukraine-Russia - First insights into recent Twitter posts about this conflict. *SwissText Conference; June 2022; Lugano, Switzerland.*

2022 von Däniken, P., Sourati , Z., Tuggener, D., Hateful Social Media Users - Can we predict their behavior?. *SwissText Conference; June 2022; Lugano, Switzerland.*

Computer skills

Programming Languages: Python, R, C, C++, SQL, Java, Javascript (ES5, ES6), Typescript, HTML5, CSS, SCSS, Verilog, Kotlin, Matlab

Tools and Frameworks: PyTorch, Hugging Face, Weights & Biases, Keras, Stata, Linux, Spring, React, Angular, jQuery, AJAX, Git, Bootsrap, MongoDB, Latex, Node js., Quartus, MySQL, Android Studio

Teaching

2021 Database Systems (TA) Dr. Shakery

2020, 2021 Artificial Intelligence (TA) Dr. Yaghoubzadeh, Dr. Fadaei

2020 Probability and Statistics in Engineering (TA) Dr. Bahrak

2019, 2020 Design and Analysis of Algorithms (TA) Dr. Mahini

2019, 2020 Advanced Programming (TA) Dr. Khosravi

2019, 2020 Theory of Formal Languages and Automata (TA) Dr. Hojjat