Current Position
Department of Computer Science
University of Southern California
Los Angeles, CA 90007, United States

Contact Info
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RESEARCH INTERESTS

- Natural Language Processing (NLP)
- Robustness and Fairness in NLP
- Social aspects of NLP

EDUCATION

Ph.D. in Computer Science Jan. 2020 - May. 2024 (Expected)
University of Southern California
Member of Morality and Language Lab PI: Morteza Dehghani

M.Sc. in Computer Science Jan. 2020 - Jan. 2022
University of Southern California
Courses: Data-centric NLP, Robustness in NLP, Applied NLP, Representation Learning, Theory of Machine Learning, Econometrics, Multilevel Modeling, Advanced Algorithms

B.Sc. in Computer Engineering Sept. 2014 - Sept. 2019
Department of Computer Engineering, University of Tehran
GPA: *3.9* PI: Majid Nili Ahmadabadi

PUBLICATIONS

[1] **Omrani, A.**, Ziabari, A., Yu, C., Golazizian, P., Kennedy, B., Atari, M., Ji, Heng., Dehghani, M. (2023) Social-Group-Agnostic Bias Mitigation via the Stereotype Content Model — ACL 2023, Nominated for Best Paper Award (1.6% of accepted papers)

[2] Osborne, M., **Omrani, A.**, Dehghani, M. (2023) The sins of the parents are to be laid upon the children: biased humans, biased data, biased models — Perspectives on Psychological Science

[3] Atari, M., Mehl, M.R., Graham, J., Doris, J.M., Schwarz, N., Davani, A.M., **Omrani, A.**, Kennedy, B., Gonzalez, E., Jafarzadeh, N. and Hussain, A. (2023). The paucity of morality in everyday talk — Scientific Reports.

[4] Mostafazadeh Davani, A., **Omrani, A.**, Kennedy, B., Atari, M., Ren ,X., Dehghani, M. (2021). Improving Counterfactual Generation for Fair Hate Speech Detection. — ACL 2021, Workshop on Online Abuse and Harms (WOAH).

[5] Kennedy, B., Atari, M., Mostafazadeh Davani, A., Hoover, J., **Omrani, A.**, Graham, J., Dehghani, M. (2021). Moral Concerns are Differentially Observable in Language. — Cognition.

[6] Kennedy, B., Atari, M., Mostafazadeh Davani, A., Yeh, L., **Omrani, A.**, Kim, Y., Coombs Jr., K., Havaldar, S., Portillo-Wightman, G., Gonzalez, E., Hoover, J., Azatian, A., Cardenas, G., Hussain, A., Lara, A., Omary, A., Park, C., Wang, X., Wijaya, C., Dehghani, M. (2020). Introducing the Gab Hate Corpus: Defining and applying hate-based rhetoric to social media posts at scale. — Language Resources and Evaluation

In Preparation and Under Review

[1] **Omrani, A.**, Ziabari, A., Golazizian, P., Sorensen, J., Dehghani, M. A Continual Learning Benchmark for Problematic Content Detection — Under review at Neurips 2023 Dataset and Benchmark Track

[2] Golazizian, P.*, **Omrani, A.***, Ziabari, A.S., Lai, M., Dehghani, M. ACID: Annotation Confidence and Instance Difficulty — Under Review

[3] Atari, M., **Omrani, A.**, Dehghani, M. Contextualized Construct Representation: Leveraging Psychometric Scales to Advance Theory-Driven Text Analysis — In Preparation

[4] Kennedy, B., **Omrani, A.**, Dehghani, M. Exemplar-based Interpretations of Speaker-Language Relationships — In Preparation

[5] **Omrani, A.**, Hoover, J., Dehghani, M., Jordan, J., Kteily, N. The Role of Ambiguity in Condemnation of Moral Transgressions — In Preparation

[6] Lee, E., **Omrani, A.**, Dehghani, M. (2021) Moral Foundations and Prosocial Behaviors in Crowdfunding Campaigns for Nonprofit Organizations — In Preparation

[7] Kennedy, B., **Omrani, A.**, Reyes, M., Mostafazadeh Davani, A., D'Ambrosio, T., Dehghani, M. , Zevin, J. Attributing Linguistic Biases in Cognitive Testing to Language Variety — In Preparation

[8] Trager, J., Ziabari, A.S., Davani, A.M., Golazizian, P., Karimi-Malekabadi, F., **Omrani, A.**, Li, Z., Kennedy, B., Karl Reimer, N., Reyes, M., Cheng, K., Wei, M., Merrifield, C., Khosravi, A., Alvarez, E., Dehghani, M. The Moral Foundations Reddit Corpus — In Preparation

HONORS AND AWARDS

- Best Poster Award, Society for Personality and Social Psychology (SPSP) 2023
- Graduate Research Assistantship, National Science Foundation (NSF) 2022
- Graduate Research Assistantship, National Institute of Health (NIH) 2021
- Best Bachelors Thesis Award, Tap30 and University of Tehran 2019
- Ranked **2nd** in Computer Engineering Students Class of 2018, University of Tehran 2018
- DAAD Scholarship for Summer Internship at Fraunhofer IDMT 2017
- Faculty of Engineering Award, University of Tehran 2016
- Ranked **115th** among 200,000+ participants in nationwide university entrance exam 2014
- **3rd** Place in RoboCup Iran Open 2012 Junior Soccer League 2012
- Member of the National Organization for Development of Exceptional Talents 2007

WORK & RESEARCH EXPERIENCE

Software Engineering Intern May 2022 - Aug. 2022
Identity Graph, Snap Inc., United States
Manager: Shipeng Gong - Mentors: Bahador Yeganeh & Houshmand Shirani-Mehr

Working on improving the identity model (details pending privacy approval).

Software Engineering Intern May 2022 - Aug. 2022
Business Integrity, Snap Inc., United States
Manager: Xiaojia Zhao - Mentor: Liqun Yu

Built a machine learning pipeline for understanding the content of advertisement websites and tagging them according to an extensive tag taxonomy. The system achieved F1 score of above 0.8 for the majority of the tags and was pushed to production to provide tag suggestions, reducing the annotation turnaround time and increasing the recall of annotations.

Research Assistant Jan. 2020-Present
Morality and Language Lab, USC, United States

I focus on the social aspects NLP. My research often involves design, development, and validation of NLP systems with applications to social scientific problems. My work at USC has been published in Scientific Reports, Cognition, Language Resources and Evaluation, and at ACL.

Research Assistant Aug 2018 - Aug. 2019
Cognitive Systems Lab, University of Tehran, Iran

Worked on the applications of attention mechanism in medical decision support systems under the supervision of Majid Nili Ahmadabadi. My thesis on the topic demonstrated improvements in interpretability and generalization of the system and got the Best Thesis award from University of Tehran and Tap30.

Research Intern June 2017 - Sept. 2017
Music Information Retrieval Group, Fraunhofer IDMT, Germany

I was responsible for the design and development of a singing voice detection system from weak labels. I applied a deep convolutional neural network to the spectrogram of the music input under the supervision of Estefanía Cano Cerón. Using a mixture of post-hoc analysis methods I improved the performance and reduced the optimal model's size.

Research Intern June 2016 - Sept. 2016
Data science Lab, University of Tehran, Iran

I learned about Graph Analysis for Big Data and applied it to the Call Data Records (CDR) of Iran's largest mobile operators under the supervision of Behnam Bahrak. We were able to detect anomalies and link them to corresponding real-world events such as popular sport shows, spammers, and special holidays.

Ad-hoc REVIEW

- Association for Computational Linguistics (ACL)
- The North American Chapter of the Association for Computational Linguistics (NAACL)
- Empirical Methods in Natural Language Processing (EMNLP)
- Cognitive Science Society (CogSci)

TEACHING EXPERIENCE

- Tutorial - **Theory-Driven Text Anlysis for Social Psychologists** SPSP 2023
- Guest Lecture - **Applied Machine Learning** USC 2022
- Teaching Assistant of **Analysis of Algorithms** Fall 2022, Summer 2020, Spring 2020
- Head Teaching Assistant of **Artificial Intelligence** Spring 2018
- Head Teaching Assistant of **Software Testing** Fall 2018
- Teaching Assistant in **Network Security** Spring 2018, Fall 2018
- Teaching Assistant in **Operating Systems** Spring 2018, Fall 2018, Spring 2017
- Teaching Assistant in **Databases** Spring 2018, Fall 2018, Spring 2017
- Teaching Assistant in **Engineering Probability and Statistics** Fall 2016
- Teaching Assistant in **Introduction to Computing and Programming** Fall 2015

SKILLS

- **Programming:** Python, C, C++, Java, R, Matlab
- **Machine Learning:** Pandas, Numpy, Scikit-learn, PyTorch, TensorFlow, Transformers
- **Statistics**: Multi-level Modeling
- **Languages:** English, Persian