

Ali Omrani

Current Position

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

Contact Info

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RESEARCH INTERESTS

- Robustness and Fairness in Machine Learning
- Social aspect of Natural Language Processing

EDUCATION

Ph.D. in Computer Science Jan. 2020 - Dec. 2024 (Expected)
University of Southern California

M.Sc. in Computer Science Jan. 2020 - Jan. 2022
University of Southern California
Courses: 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 Advisor: Majid Nili Ahmadabadi

HONORS AND AWARDS

- Best Bachelors Thesis Award from [Tap30](#) and University of Tehran 2019
- Ranked **2nd** among University of Tehran Computer Engineering Students Class of 2018 2018
- DAAD Scholarship for Summer Internship at [Fraunhofer IDMT](#) 2017
- Faculty of Engineering Award from 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

PUBLICATIONS

- [1] Lee, E., **Omrani, A.**, Dehghani, M. [Moral Foundations and Prosocial Behaviors in Crowdfunding Campaigns for Nonprofit Organizations](#) — Accepted to 108th National Communication Association
- [2] Osborne, M., **Omrani, A.**, Abdurahman, S., Trager, J., Dehghani, M. [Do the Wrong Thing for the Right Reasons: When Acting Uncivily Merits Status](#) — Abstract Accepted to International Association for Conflict Management 2022
- [3] Mostafazadeh Davani, A., **Omrani, A.**, Kennedy, B., Atari, M., Ren, X., Dehghani, M. (2021). [Improving Counterfactual Generation for Fair Hate Speech Detection](#). Proceedings of the 5th Workshop on Online Abuse and Harms (WOAH 2021) @ ACL 2021.

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- [4] Kennedy, B., Atari, M., Mostafazadeh Davani, A., Hoover, J., **Omrani, A.**, Graham, J., Dehghani, M. (2021). [Moral Concerns are Differentially Observable in Language](#). Cognition.
- [5] Kennedy, B., Atari, M., Mostafazadeh Davani, A., Yeh, L., **Omrani, A.**, Kim, Y., Coombs Jr., K., Havaladar, 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.**, Hoover, J., Dehghani, M., Jordan, J., Kteily, N. [The Role of Ambiguity in Condemnation of Moral Transgressions](#) — In Preparation
- [2] **Omrani, A.**, Azizi, J., Jia, R., Dehghani, M. [Distributionally Robust Optimization for Mitigating Societal Biases in Language Models](#) — In Preparation
- [3] Atari, M., Mehl, M., Graham, J., Doris, J., Schwarz, N., Mostafazadeh Davani, A., **Omrani, A.**, Kennedy, B., Gonzalez, E., Jafarzadeh, N., Hussain, A., Mirinjian, A., Madden, A., Bhatia, R., Burch, A., Harlan, A., Sbarra, D., Raison, C., Moseley, S., Polsinelli, S., Dehghani, M. [The Paucity of Morality in Everyday Talk](#) — R&R at Scientific Reports
- [4] Atari, M., Hoover, J., Kennedy, B., Mostafazade Davani, A., **Omrani, A.**, Karimi-Malekabadi, F., Portillo-Wightman, G., Birjandi, S., Dehghani, M. [Pathogens are Linked to Human Moral Systems across Time and Space](#) — Under review at PNAS
- [5] 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

RESEARCH EXPERIENCE

Machine Learning Engineering Intern

May 2022 - Aug. 2022

Business Integrity, Snap Inc., United States

Built a multimodal 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 deployed to provide suggestions to annotators reducing the annotation turnaround time and increasing the recall of annotations.

Research Assistant

Jan. 2020-Present

Computational Social Science Lab, USC, United States

My research involves design, development, and validation of Natural Language Processing algorithms with applications to social scientific problems. My work at CSSL has been published in 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](#).

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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.

TEACHING EXPERIENCE

- 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
- **Libraries:** Pandas, Numpy, Scikit-learn, PyTorch, TensorFlow, Transformers
- **Languages:** English, Persian