

Omid Memarrast

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EDUCATION

University of Illinois Chicago, Department of Computer Science

Doctor of Philosophy in Computer Science; GPA: 4.00/4.00

Aug 2023

DOCTORAL THESIS: (Advisor: [Brian D. Ziebart](#))

Distributionally Robust and Specification Robust Fairness for Machine Learning

Master of Science in Computer Science

Aug 2021

University of Tehran, Electrical and Computer Engineering Department

Bachelor of Science in Software Engineering

Sep 2012

INTERESTS

Fairness in ML, Responsible Generative AI, NLP, Deep Learning, Recommender Systems, Computer Vision

EXPERIENCE

University of Illinois Chicago

Chicago, IL

Research Assistant

Jan 2019 – Present

- Prototyped and designed the architecture of *superhuman fair* model for Gen AI and LLMs. (in progress)
- Implemented *superhuman fair classifier* that re-casts fairness as an imitation learning task with the goal of unambiguously being more fair than suboptimal reference human decisions across many fairness metrics. ([ICML 2023](#))
- Developed *fair* and *robust* decision-making algorithms by utilizing a *distributionally robust learning* framework. Through a *min-max game* between a predictor and an adversary, we built fair and robust methods for ranking ([PAKDD 23](#)), classification ([AAAI 2020](#)) and addressing covariate shift ([AAAI 2021](#)).

LinkedIn Corporation

Sunnyvale, CA

Machine Learning Research Intern

June 2020 – Sep 2020

- Developed an end-to-end pipeline for the *recommendation system* of PYMK (People You May Know) ensuring fairness of exposure for both source and destination members.
- Developed the framework at the scale using Apache Spark (Scala) and Hadoop. Implemented optimization framework in R programming language.

Morningstar, Inc.

Chicago, IL

Data Science Intern

June 2018 – Sep 2018

- Built a document classification system using NLP techniques. Implemented an end-to-end pipeline using LSTM, GRU, Glove Embedding, AWS, Keras, Scikit-learn, NumPy, and Pandas techniques and libraries.

MITRC Startup

Tehran, Iran

Software Engineer, Machine Learning

Jan 2014 – March 2016

- Developed end-to-end pipelines for NLP tasks, including tokenization, chunking, and POS tagging at scale, using Maven, Java EE, Scrum, Git, and Spark techniques and libraries. Additionally, I had the responsibility of being the Scrum Master for the team working with JIRA.
- Built an information extraction system to extract existing relations from text using a bootstrap methodology by augmenting seeds, relations, and patterns in the system.

SKILLS

Programming: Advanced: Python, C/C++, Java | Intermediate: JavaScript, SQL, MATLAB, R, Scala

Libraries: Advanced: PyTorch, Sklearn, NumPy, Pandas, Matplotlib | Intermediate: TensorFlow, JAX

Frameworks and Tools: JIRA, AWS, A/B Testing, Hadoop, Spark, Git, HuggingFace

- Omid Memarrast**, Linh Vu, Brian Ziebart. [Superhuman Fairness](#). *International Conference on Machine Learning (ICML)*. 2023. (27.9 % acceptance rate) [[page](#), [code](#), [slides](#), [poster](#)]
- Omid Memarrast**, Ashkan Rezaei, Rizal Fathony, Brain Ziebart. [Fairness for Robust Learning to Rank](#). *Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)*. 2023. (17.3 % acceptance rate)
- Ashkan Rezaei, Anqi Liu, **Omid Memarrast**, Brain Ziebart. [Robust Fairness under Covariate Shift](#). *AAAI Conference on Artificial Intelligence (AAAI)*. 2021. (21.4 % acceptance rate)
- Ashkan Rezaei, Rizal Fathony, **Omid Memarrast**, Brian Ziebart. [Fairness for Robust Log Loss Classification](#). *AAAI Conference on Artificial Intelligence (AAAI)*. 2020. (20.6 % acceptance rate)
- Daniel Khashabi, Arman Cohan, Siamak Shakeri, Pedram Hosseini, Pouya Pezeshkpour, Malihe Alikhani, Moin Aminnaseri, Marzieh Bitaab, Faeze Brahman, Sarik Ghazarian, Mozhdeh Gheini, Arman Kabiri, Rabeeh Karimi Mahabagdi, **Omid Memarrast**, et al. [ParsiNLU: A Suite of Language Understanding Challenges for Persian](#). *Transactions of the Association for Computational Linguistics (TACL)*. 2021.

SELECTED WORKSHOPS AND PRESENTATIONS

- Omid Memarrast**, Linh Vu, Brian Ziebart. [Superhuman Fairness via Subdominance Minimization](#). *ICLR Workshop on Pitfalls of limited data and computation for Trustworthy ML*. 2023.
- Omid Memarrast**, Ashkan Rezaei, Rizal Fathony, Brain Ziebart. [Fairness for Robust Learning to Rank](#). *NeurIPS Workshop on Algorithmic Fairness through the Lens of Causality and Robustness*. 2021.

ACADEMIC ACTIVITIES

- Reviewer:** ICLR 2024, ICML 2022, NeurIPS 2021, 2022, 2023
- Program Committee:** IJCAI 2021, 2022

TEACHING EXPERIENCE

- Primary Instructor:** Database Systems (IDS 410), U of Illinois Chicago Fall 2023
- Covering ER-Models, SQL, and AWS Data Engineering where students learn to work with Amazon S3, Athena, AWS Glue, Amazon Redshift, and EMR.
- Student Supervision:** Linh Vu (on Superhuman Fairness paper) June 2022 – May 2023
- Teaching Assistant:**
- Computer Algorithms (CS 401) Fall 2022 • Advanced Machine Learning (CS 512) Spring 2022
 - Programming Practicum[C,C++,Java] (CS 211) Spring 2017 - Fall 2019

SELECTED PROJECTS

- Fine-tune LLMs to Solve Sequence-to-Sequence Learning Problems** | [GitHub](#)
- Implemented models to predict the SCAN (commands, actions) dataset. Applied a hierarchical approach to seq-to-seq learning with latent neural grammars. Fine-tuned an LLM (T5) on the dataset.
- Twitter Sentiment Analysis using Machine Learning and Deep Learning Techniques** | [GitHub](#), [Report](#)
- Implemented various ML (SVM, Logistic Regression, Multinomial Naive Bayes, XGBoost) and Deep Learning (CNN, LSTM, Bi-LSTM) methods to perform sentiment analysis over a corpus of tweets.
- Fine Grained Image Classification Using Deep Convolutional Neural Networks** | [Report](#)
- Trained four versions of **ResNet** and two versions of **DenseNet** (each with different depths) for the task of recognizing museum artwork attributes.
- Graphical Models for Inference in a Bayesian Network** | [GitHub](#)
- Implemented CRF augmented with CNN in AlexNet's architecture for structured output prediction.

AWARDS & ACHIEVEMENTS

- Graduate Student Award Scholarship (5000 USD) at U of Illinois Chicago. Jan 2017 – Dec 2017