Yasaman Jafari

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Education

University of California San Diego, Ph.D. in Computer Science — Sept. 2021 – June. 2026

- **GPA:** 4.0/4.0
- **Advised by:** Dr. Taylor Berg-Kirkpatrick
- **M.Sc. Degree** acquired in 2024

University of Tehran, B.Sc. in Computer Engineering — Sept. 2016 – Feb. 2021

- **GPA:** 19.14/20.0 (4.0/4.0)
- **Advised by:** Dr. Behnam Bahrak
- **B.Sc. Thesis:** Investigating the effects of Goodreads' challenges on individuals' reading habits

Research Experience

Graduate Research Assistant, University of California San Diego – California, United States (Advisor: Dr. Taylor Berg-Kirkpatrick) — Jun. 2023 – Present

- **State Space Models for RAG:** A Retrieval-Augmented Generation (RAG) system using State Space models for long-context document retrieval and multi-hop reasoning question answering. (In Progress)
- **GENIE - Climate Foundation Model:** A multi-modal Transformer for climate risk assessment, incorporating physics-guided deep learning, Bayesian active learning, and reinforcement learning through world-feedback for scientific validity and uncertainty quantification. (In Progress)
- **RL-based Discrete Prompt Optimization:** Developed multi-objective optimization techniques for RL-based prompt optimization, improving balance across competing rewards in NLP tasks like style transfer and translation.

Graduate Research Assistant, University of California San Diego – California, United States (Advisor: Dr. Babak Salimi) — Sept. 2021 – Jun. 2023

- Repaired data using optimal transport theory to enforce conditional independences and improve fairness
- Detected and accounted for heterogeneity and intersectional discrimination in data to train fair ML models

Undergraduate (Volunteer) Research Assistant, University of Tehran Science and Technology Park – Tehran, Iran (Advisor: Dr. Behnam Bahrak) — Oct. 2019 – Feb. 2021

- Analyzed GoodReads challenges and the potential effects of publicly announcing goals

Research Papers

ClimaQA: An Automated Evaluation Framework for Climate Foundation Models — 2024

V. Manivannan, **Y. Jafari**, S. Eranky, S. Ho, R. Yu, D. Watson-Parris, Y. Ma, L. Bergen, T. Berg-Kirkpatrick [Under Submission]

MORL-Prompt: An Empirical Analysis of Multi-Objective Reinforcement Learning for Discrete Prompt Optimization — 2024

Y. Jafari, D. Mekala, R. Yu, T. Berg-Kirkpatrick [EMNLP Findings 2024] arXiv:2402.11711

Investigating the effects of Goodreads challenges on individuals reading habits — 2020

Y. Jafari, N. Sabri, B. Bahrak [Online] arXiv:2012.03932

Insdustry Experience

Data Science Intern (KYC - Adverse Media), Moody's Analytics – New York, United States — Jun. 2023 – Aug. 2023

- Created evaluation data for the old model (Jeff SpaceLi) used in Adverse Media Highlighting

- Evaluated the model and conducted a thorough analysis of its performance, identifying areas of failure
- Proposed various options for improving the model

Data Analysis and Modeling Intern, Moody's Analytics – New York, United States Jun. 2022 – Aug. 2022

- Mitigated the run-time bottlenecks of working with large data using Spark
- Converted estimation codes from R to Python for efficiency purposes

Software Engineering Intern, Supertext AG – Zurich, Switzerland Feb. 2020 – Jul. 2020

- Implemented various front-end and back-end features such as Instant Translation and SSO authentication

Software Engineering Intern, Rahnema College – Tehran, Iran Aug. 2018 – Oct. 2018

- Designed and developed an application called Akkaskhooneh, which was a combination of Instagram and Pinterest

Teaching Experience

Graduate Teaching Assistant, University of California San Diego – California, United States

- CSE 158: Web Mining and Recommender Systems, Dr. Julian McAuley Sept. 2023 – Dec. 2023
- CSE 256: Statistical Natural Language Processing, Dr. Ndapa Nakashole Mar. 2023 – Jun. 2023
- CSE 250A: Probabilistic Reason and Learning Course, Dr. Taylor Berg-Kirkpatrick Sept. 2022 – Dec. 2022

Notable Projects

Language Model Detoxification: A reinforcement learning-based method to fine-tune a GLM to be less toxic. (Course research project, University of California San Diego, Dec. 2022)

GHS Algorithm Distributed Implementation: Distributed algorithm for finding the minimum spanning tree using Java and Kompics. (Course project, University of Tehran, May 2019)

MapReduce Algorithm Distributed Implementation: Distributed algorithm for finding the number of occurrences of each word in a text file using Java and Kompics. (Course project, University of Tehran, Apr. 2019)

CIS Fraud Detection: Predicted the probability of an online transaction being fraudulent. Over 140 up-votes on Kaggle.

Akkaskhooneh: A social media mobile application that combines features of Instagram and Pinterest, implemented using ReactNative. (Internship project, Rahnema College, Sept. 2018)

Honors and Awards

- Finalist for the Best Undergraduate Project Award Feb. 2021
- 3rd rank (among 88 students) - FOE Top Students Award Jun. 2018
- 1st rank (among 88 students) - FOE Top Students Award Jun. 2017
- 3rd Place - Soccer 2D Simulation League, FarzCup (Farzanegan1) Mar. 2014
- 14th Place - Soccer 2D Simulation League, IranOpen Apr. 2014

Services

Conference Reviewer: NeurIPS 2024, ICML 2024, ICLR 2024, NeurIPS 2023, ICML 2023, FAccT 2023

UCSD Graduate Women in Computing (GradWIC) Mentor Served as a mentor in the GradWIC mentorship program for incoming graduate students from underrepresented backgrounds (Academic year 2023-2024)

Conference Volunteer Student ICDE 2023

Skills

Programming Languages: Python, C++, C, C#, Java, JavaScript, Ruby

Tools and Methodologies: PyTorch, Pandas, Numpy, SciKit Learn, Jupyter Notebook, Tensorflow, Git, Scrum, LaTeX, SQL

Languages: Persian (Native Language), English (Professional Working Proficiency – TOEFL 119/120), German (Intermediate – B1)