

MOJDEH SAADATI

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PROFESSIONAL SUMMARY

- Research Interest: AI for scientific discovery and agriculture, uncertainty quantification, causal inference and probabilistic modeling, physics-aware AI, AI fairness, reinforcement learning, functional data analysis, differentiable simulations.
- Programming skills: Python, Linux, C++, TensorFlow, PyTorch, Java, C#, SQL, Neo4j, R, STATA, MATLAB, Parallel Computing, HPC clusters, Julia, JAX.

EDUCATION

Iowa State University (ISU) Ames, IA
Doctor of Philosophy, Ph.D., Computer Science, and Applied Mathematics, GPA: 3.93/4
Advisors: Baskar Ganapathysubramanian, James Rossmanith

Iowa State University (ISU) Ames, IA
Master of Science, M.S., Computer Science, GPA: 3.87/4 August 2020
 Thesis: Adjustment criterion for recovering causal effects from missing data. Advisor: Jin Tian

University of Tehran (UT) Tehran, Iran
Bachelor of Science, B.S., Computer Science, GPA: 16.65/20 July 2016

WORK EXPERIENCE

Hitachi America Ltd Santa Clara, CA
Data Science and Machine Learning Intern Sep 2023-Jan 2024
 • Working on a research project on the intersection of deep learning and functional data analysis.

Computer Science Department, Iowa State University Ames, IA
Graduate Research Assistant, AI Institute for Resilient Agriculture Lab May 2022-Sep 2023
 • Developing a reinforcement learning-based algorithm for maize breeding simulation.
 • Studying uncertainty quantification and out-of-distribution in deep learning models.
 • Implementing algorithms such as conformal prediction for finding sets within specific uncertainty intervals and applying algorithms such as Mahalanobis distance-based, maximum SoftMax probability, and energy-based to classification models such as RegNet and VGG for out-of-distribution detection.
 • Developing reinforcement learning-based algorithm for improving maize breeding.

Graduate Research Assistant, Software Engineering Lab May 2021-Feb 2022
 • Studied the problem of fairness bug repair in parallel ensembles through modular decomposition.
 • Conducting an empirical study on the fairness of ensemble models.

Graduate Teaching Assistant, Introduction to Database Systems Aug 2020-May 2022
 • Assisted the instructors as one of four TAs in teaching the following concepts: entity relational data model, SQL queries, query optimization, database application development (using JDBC), internal database, and graph DBMS (using Neo4j). (course size: 180 Students)

Graduate Research Assistant, Artificial Intelligence Lab Aug 2017-Aug 2020
 • Studied the existing approaches in handling different types of missing data (missing completely at random, missing at random, missing not at random).
 • Studied the problem of causal effects estimation from observational data.
 • Learned to map a real-world problem to a causal graph and study the problem from a graphical perspective.

Graduate Teaching Assistant, Object-Oriented Programming Jan 2020-Aug 2020

- Assisted the instructors as one of 20 TAs in teaching the following concepts: Teaching Java programming languages and basics of object-oriented programming. (course size: 540 Students)

Non-Communicable Disease Research Center

Tehran, Iran

Data Scientist

Jan 2016-Dec 2016

- Cleaned Iran's census data and detected correlated variables in estimating the healthcare quality in the country.
- Designed a sampling technique based on hierarchical clustering and principal component analysis to detect the states that are the best representative of the country and detect the distinguishing variables in those states based on the decision tree.

PUBLICATIONS AND CONTRACT PROJECTS

- [From Simulation to Discovery: AI Enabled Probabilistic Emulation of Mechanistic Crop Systems \(Under review\)](#)
- [L Van der Laan, K Parmley, **M Saadati**, HT Pacin, S Panthulugiri, S Sarkar, ...; Genomic and phenomic prediction for soybean seed yield, protein, and oil \(The Plant Genome, 18\(1\), e70002\)](#)
- [M Saadati, A Balu, S Chiranjeevi, T Jubery, A Singh, S Sarkar, A Singh, B Ganapathysubramanian; Out-of-distribution detection algorithms for robust insect classification \(Plant Phenomics Journal\)](#)
- [S Chiranjeevi, **M Saadati**, Z Deng, J Koushik, T Jubery, D Mueller, M Neal, N Merchant, A Singh, A Singh, S Sarkar, A Singh, B Ganapathysubramanian; Deep learning powered real-time identification of insects using citizen science data \(PNAS Journal\)](#)
- [J Feng, **M Saadati**, T Jubery, A Jignasu, A Balu, Y Li, L Attigala, P Schnable, S Sarkar, B Ganapathysubramanian, A Krishnamurthy; 3d reconstruction of plants using probabilistic voxel carving \(Computers and electronics in agriculture journal\)](#)
- [Out-of-distribution algorithms for a robust insect classification \(AAAI 2023 Workshop AIAFS\)](#)
- [M Parsaeian, M Mahdavi, **M Saadati**, P Mehdipour, S Khatibzadeh, S Shahraz, F Farzadfar; Introducing an efficient sampling method for national surveys with limited sample sizes: application to a national study to determine quality and cost of healthcare. \(BMC Public Health Journal\)](#)
- [M Saadati, J Tian; Adjustment criterion for recovering causal effects from missing data. \(ECML-PKDD\)](#)
- [M Saadati, S Shihab, M Rahman; Movie recommender systems: implementation and performance evaluation, based on user-user collaborative filtering, item-item collaborative filtering, content-based recommendation, SVD, and neural networks. \(Technical report uploaded to arXiv\)](#)
- [S Shahraz, AG Pittas, **M Saadati**, CP Thomas, CM Lundquist, DM Kent; Change in testing, awareness of hemoglobin A1c result, and glycemic control in U.S. adults, 2007-2014. \(Jama 318 \(18\); 1825-1827\)](#)
- Developing medical translation software (English to Persian) for Teimourzadeh Publisher using C#.

PROFESSIONAL CERTIFICATE

Deep Learning Specialization

Coursera

Neural Networks and Deep Learning (course 1); Improving Deep Neural Networks: Hyperparameter Tuning, Regularization, and Optimization (course 2); Structuring Machine Learning Projects (course 3); Convolutional Neural Networks (course 4); Sequence Models (course 5)

Google Cloud Big Data and Machine Learning Fundamentals

Coursera

Scientific Machine Learning

Canvas Credentials

Fundamentals of Reinforcement Learning

Coursera

LEADERSHIP SKILLS AND SERVICES

Workshop Organizer CVPR

Jun 2025, 2026

CVPR Ag-Vision Workshop Organizer

Nashville (TN), Denver (CO)

- Helping with workshop advertisement, workshop schedule arrangements, and the social media channel of the workshop, reviewing submitted papers to the conference.

Women in Agriculture and Artificial Intelligence (WIAA)

Oct 2022- Aug 2024

Student Volunteer

Ames, AI

- Conduct outreach events to present our latest research advancements in utilizing artificial intelligence to address agricultural challenges to agronomy classes at Iowa State, the Women in Ag club, 4-H youth, and Elementary through high school students.

ACM SIGPLAN conference on Systems, Programming, Languages, and Applications

Oct 2021

Student Volunteer

Chicago, IL

- Helping with the initial set-up and registration of the conference.
- Managing the multimedia systems of the presentation rooms

Graduate and Professional Students Senate (GPSS), Iowa State University

Aug 2019-May 2020

Senator in Wellness Committee, Representative of Computer Science Department

Ames, IA

- Communicated relevant information from Senate meetings to the department's faculty and students.
- Shared challenges that international students face with the Wellness Committee, which led to the International Cycle Program, where students gather weekly to socialize and talk about wellness topics.

Computer Science Graduate Student Organization, Iowa State University

Aug 2019-May 2020

Executive Board Member

Ames, IA

- Organized monthly industry nights in which graduate students get the chance to socialize and make connections with industry representatives.
- Assisted other members of the organization in holding poster presentations, a fast-networking event, department fundraising, Hackathon marathon.

Iranian Students' and Scholars Association, Iowa State University

Aug 2018- May 2019

Secretary Officer

Ames, IA

- Served as one of four officers in organizing seven cultural events with about 200 members to celebrate the Persian culture and introduce it to non-Iranian people.
- Helped incoming Iranian students by providing temporary accommodation and necessary information about the city and the university to facilitate their adjustment to the new environment.

Paper and Grant Review

- Frontiers in Sustainable Food Systems **Aug 2026**
- Nature manuscript reviewer **Feb 2026**
- NeurIPS workshop proposal reviewer **July 2024**
- Reviewing paper for Precision Agriculture journal. **Jan 2024**
- Reviewing grant proposal for the Swiss National Science Foundation on artificial intelligence. **Feb 2024**

HONORS/GRANTS

- Selected as one of 58 students to receive a full conference scholarship from the NSF AI Institute Virtual Organization (AVIO) to attend the Summit on AI Institute Leadership (SAIL) **OCT 2025**
- Arthur A. Collins education fund in computer science for holding a leadership position in a student organization while showing integrity and maintaining excellent scholarship, ISU. (\$2,000) **May 2020**

- 1st place in Computer Science Graduate Student Organization (CS-GSO) and 2nd place in the computer science department's 50th anniversary for poster presentation "Adjustment for recovering causal effects in missing data," ISU. (Total prize: \$380) **Sep 2019**
- Ranked as the top 0.7% among nearly 280,000 participants in Iran's nationwide universities' entrance exam. **May 2011**
- 6th place in Robocup programming league at "world championship" Singapore. **June 2010**

Professional Memberships

- Computer Science Graduate Organization of Iowa State University **Jan 2017-present**
- Philosophy Student Organization of Iowa State University **Jan 2020-present**
- Iranian Students' and Scholars' Association Organization Iowa State University **Jan 2017-present**
- Member of Iran's Red Crescent Society **Jan 2016-Dec 2016**
- Representative of Computer Science Students in Iran's Student Committee of Informatics of Tehran University **Aug 2014-Aug 2016**