

# MohammadHossein Rezaei

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## Education

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### University of Arizona

Aug. 2022 – May 2026

*B.S. in Computer Science and B.S. in Mathematics*

*Tucson, AZ*

- Minor in Linguistics, GPA: **4.0/4.0**, Dean's List
- Galileo Circle Scholar (Selected as **top 6** among **1200+** CS students), Phi Beta Kappa (**top 5%**)
- Apple Pathways Alliance Participant (Nominated by the department as **one of the three** students)

## Technical Skills

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**Languages:** Python, C/C++, Java, R, Swift, JavaScript, HTML, CSS, MATLAB

**Technologies/Frameworks:** Bash, Git, PyTorch, TensorFlow, NumPy, Sklearn, pandas, Transformers, Mongo, MySQL, React, ROS, Jupyter Notebook, Matplotlib, Unit testing, AWS, Azure

## Professional and Research Experience

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### Stanford University - Stanford NLP Group (Stanford AI Lab)

Jun. 2024 – Present

*Undergraduate Visiting Research Intern*

*Stanford, CA*

- Conducting research under Dr. Diyi Yang on physical social norms understanding in vision language models
- Designed a scalable framework to generate social norms associated with physical interactions in images and videos
- Developed a full-stack annotation platform for collecting and validating social norms for crowd-workers on Prolific
- Used Ego4D dataset as a seed to create a benchmark and evaluate the model's performance (in progress)

### University of Arizona - Computational Language Understanding (CLU) Lab

Mar. 2022 – Present

*Undergraduate Research Assistant and Software Engineer*

*Tucson, AZ*

- Designed two novel pre-training tasks for enhancing LLMs' negation understanding (Under review at **NAACL'25**)
- Achieved **5.2% improvement** with RoBERTa-large and **17.6%** with RoBERTa-base on CondaQA dataset
- Published a first-author paper at **ACL'24** (main) on paraphrasing in affirmative terms for negation understanding
- Currently working on a project on detecting data contamination with perturbation-based methods

### University of Arizona - Computer Science Department

Aug. 2023 – Present

*Undergraduate Teaching Assistant and Course Coordinator in Training*

*Tucson, AZ*

- Coordinated grading process using Python-based automation scripts, enhancing efficiency for 100+ students
- Worked closely with students and faculty to develop data-driven insights for improving course content and structure

### Cornell University - SoNIC Summer Research Workshop

July 2023

*Robotics and Assistive Technology Research Intern*

*Ithaca, NY*

- Developed ML models in ROS for real-time obstacle detection and decision-making for a smart assistive cane
- Achieved **97.4%** accuracy in in real-time obstacle detection through continuous optimization and algorithmic analysis
- **Ranked 2nd** in the individual final test **among 40 participants**

## Projects

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### Room Reservation System

- Developed full-stack web application using React and Node.js, optimizing real-time data processing for room availability
- Integrated APIs for scheduling and data visualization, optimizing the user interface to enhance engagement and usability
- Replaced the old system used by the Computer Science Department for higher efficiency and more features

### Space Invaders

- Built an interactive game using JavaFX with real-time data processing and dynamic difficulty scaling
- Implemented dynamic difficulty scaling through algorithmic analysis of player behavior, enhancing user engagement
- Designed the game with different types of enemies and power-ups

## Leadership & Extracurricular Activities

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### Vice Lead & Tech Lead

Aug. 2023 – Present

*Google Developer Student Club - University of Arizona*

- Revitalized the chapter, growing active participation from 15 to over 70 members
- Led workshops on full-stack development, cloud infrastructure, and ML frameworks such as PyTorch and TensorFlow

## Publications

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### Accepted Papers:

1. **MohammadHossein Rezaei** and Eduardo Blanco. 2024. Paraphrasing in Affirmative Terms Improves Negation Understanding. In *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 2: Short Papers)*, pages 602-615, Bangkok, Thailand. Association for Computational Linguistics.
2. **MohammadHossein Rezaei**, Yeaoun Kwon, Reza Sanayei, Abhyuday Singh, and Steven Bethard. 2024. Clulab-uofa at semeval-2024 task 8: Detecting machine-generated text using triplet-loss-trained text similarity and text classification. In *Proceedings of the 18th International Workshop on Semantic Evaluation (SemEval-2024)*, pages 1509-1515, Mexico City, Mexico. Association for Computational Linguistics.
3. Reza Sanayei, Abhyuday Singh, **MohammadHossein Rezaei**, and Steven Bethard. 2024. MARiA at SemEval-2024 Task 6: Hallucination Detection Through LLMs and MNLi and and Cosine similarity. In *Proceedings of the 18th International Workshop on Semantic Evaluation (SemEval-2024)*, Mexico City, Mexico. Association for Computational Linguistics.
4. Zijie Wang, Md Hossain, Shivam Mathur, Terry Melo, Kadir Ozler, Keun Park, Jacob Quintero, **MohammadHossein Rezaei**, Shreya Shakya, Md Uddin, and Eduardo Blanco. 2023. Interpreting Indirect Answers to Yes-No Questions in Multiple Languages. In *Findings of the Association for Computational Linguistics: EMNLP 2023*, pages 2210-2227, Singapore. Association for Computational Linguistics.

### Under Review:

1. **MohammadHossein Rezaei** and Eduardo Blanco. 2025. Making Language Models Robust Against Negation. *Under Review at NAACL 2025*. Reviewer Scores: **4, 4, 3.5**. Meta review score: **4**. *Details available upon request*.