

# Haoran Zheng

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## Summary:

Motivated AI researcher with a focus on Explainable AI. Current Research Assistant at Epley Lab. Graduated with an M.S. in Applied Data Science at the University of Chicago with a 4.0 GPA. Authored the paper "*SCENE: Evaluating Explainable AI Techniques Using Soft Counterfactuals*," which introduces a novel, human-centered causal inference method to assess XAI techniques. Earned bachelor's degrees in Economics, Finance, and History as a triple major at The Ohio State University. Experienced in teaching roles across STEM fields. Recipient of the Pace Setters Award.

## Education:

### The University of Chicago

Chicago, IL

#### *Master of Science in Applied Data Science* (GPA 4.0/4.0)

December 2024

- Thesis: "Demystifying the Black Box: An Empirical Evaluation of Explainable AI Techniques in NLP Tasks"
- Advisor: Dr. Utku Pamuksuz
- Notable Coursework: Bayesian Methods, Generative AI Principles, Advanced Linear Algebra for ML

### The Ohio State University

Columbus, OH

#### *Bachelor of Science in Business Administration*

May 2022

- Major 1: *Economics* (GPA 3.9/4.0)
- Major 2: *Finance* (GPA 3.8/4.0)
- Major 3: *History* (GPA 3.8/4.0)

## Publications:

Under Review:

### *"SCENE: Evaluating Explainable AI Techniques Using Soft Counterfactuals"*

Submitted to: **KDD 2025, EMNLP 2024 Workshop BlackBoxNLP, NeurIPS 2024 Workshop InterpretableAI**

- Received positive feedback with suggestions for improvement from BlackBoxNLP reviewers
- Currently revising for resubmission

## Research Experience:

### Research Assistant at Epley Lab

September 2024 – Present

*Roman Family Center for Decision Research, Booth School of Business, The University of Chicago*

- Worked closely with Dr. Nicholas Epley
- Coordinate "*The Multicultural Study*" with Yale scholar Yin Li
- Study cross-cultural perceptions of others' beliefs and preferences

### Research Assistant for Dr. Christopher Reed

September 2024 – Present

*Department of History, The Ohio State University*

- Apply modern NLP techniques and the SCENE method to traditional History research
- Aim to identify the significance of previously unseen documents

### Research Assistant at Mindworks Lab

April 2024 – September 2024

### Research Specialist at Mindworks Lab

October 2024 – Present

*Roman Family Center for Decision Research, Booth School of Business, The University of Chicago*

- Co-manage studies and collect data for renowned scholars like Dr. Nicholas Epley and Dr. Sarah Sebo
- Literature review

### Notable Project Managed: "*Engaging with a Robot to Improve Your Overall Wellbeing*"

- Collaborated with the University of Chicago Human-Robot Interaction Lab
- Investigated the impact of personality alignment between humans and robots on the effectiveness of positive psychology exercises

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**Presentations:**

**Invited Speaker** (Declined due to scheduling conflicts)

*Causal Inference Workshop at KDD 2024*

Barcelona, Spain

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**Teaching Experience:**

**Teaching Assistant for Statistics 2320**

February 2021-May 2022

*The Ohio State University*

- Taught two recitations weekly (65 students each) about statistical topics including but not limited to hypothesis test, regression, time series, Z and T distribution, two-sample comparisons, Chi-square, and ANOVA
- Made customized review notes and visual aids to all 920 students that were enrolled
- Demonstrated how to use analytic tools such as StatCrunch and R weekly
- Held weekly office hours and performed active problem solving

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**Honors and Awards:**

**Pace Setters Award**

May 2022

*Fisher College of Business, The Ohio State University*

- Highest distinction for excellence in academics, leadership, and service

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**Applied Experience:**

**Financial Analyst**

May 2021-May 2023

*China Automotive Systems, Inc.*

Troy, Michigan

- Designed a neural model that utilized heterogeneous data to forecast and troubleshoot steering gear production
- Analyzed financial and non-financial data to project a future outcomes
- Researched current finance industry trends on Bloomberg terminal and reported them to the CEO at monthly meetings. Made recommendations and positively impacted on company decision making

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**Skills and Interests:**

**Technical Skills :**

- Explainable AI Techniques: LIME, SHAP, Gradient X Input, Grad L2 Norm, Integrated Gradients, Saliency, Guided Backpropagation, Guided Grad-CAM, DeepLIFT, Deconvolution
- Programming Languages & Tools: Python, R, MySQL, Bash
- Machine Learning Frameworks: TensorFlow, PyTorch
- Natural Language Processing
- Bayesian Methods
- Reinforcement Learning

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**Research Interests:**

- Explainable Artificial Intelligence
- Bayesian Approaches in AI
- Causal Inference in Machine Learning
- Human-Robot Interaction

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**References:**

**Dr. Utku Pamuksuz**

Associate Clinical Professor, The University of Chicago

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**Dr. Batuhan Gundogdu**

Research Assistant Professor, The University of Chicago

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**Dr. Greg Green**

Associate Senior Instructional Professor of Computer Science

Director, MS in Applied Data Science, The University of Chicago

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