

# **Yixuan Wang**

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## **HUMAN-AI INTERACTION | XAI & AI UNCERTAINTY QUANTIFICATION | INTERACTIVE MACHINE LEARNING**

**Ph.D. Candidate and Researcher** with 4+ years of experience designing and deploying production ML systems, advancing human-AI interaction. Specializes in large language model, explainable AI, object detection, and model uncertainty quantification. Combines cutting-edge research expertise with practical engineering proficiency in designing simulation frameworks, experimental infrastructures, and scalable data pipelines. Proven ability to develop rigorous evaluation protocols for AI, designing trustworthy and explainable ML systems, and translate research innovations into production-ready solutions using **PyTorch** and **TensorFlow**.

### **TECHNICAL SKILLS**

**Programming Languages:** Python, SQL, Java, JavaScript | **ML/AI Frameworks:** PyTorch, TensorFlow | **Research & Evaluation:** Experimental design, A/B testing, statistical modeling, data visualization (D3.js), user studies (Qualtrics, Amazon MTurk, Prolific) | **Development & Infrastructure:** Flask, React, Git, JMP, Node.js

## **EDUCATION**

**Ph.D. Candidate**, Computer Science (Visualization & Human-Computer Interaction), Arizona State University, Tempe, AZ

**Advisor:** Ross Maciejewski | **Dissertation:** *The Role of Visualization and Simulation on Human-AI Collaboration*

**M.S., Computer System Engineering**, Northeastern University, Boston, MA, 2020

**B.E., Automation**, Central South University, Changsha, China, 2017

## **RESEARCH EXPERIENCE**

### **Research Assistant (Ph.D.) | Arizona State University, Tempe, AZ**

**Jan 2021 – Present**

- Engineered scalable ML platforms with user interaction interface using Python, Pytorch and Flask, enabling deployment and real-time evaluation of models at scale, processing data from 200+ users for continuous performance improvement.
- Enhanced human-AI interactions and decision-making with explainable AI (XAI) and model uncertainty quantification, resulting in publications in International Journal of Human-Computer Interaction and IEEE TVCG.
- Developed simulation-based framework using Python and PyTorch to quantify cost-benefit tradeoffs in interactive machine learning systems for labeling with various machine learning models (e.g., BiLSTM, CNN, SGD), with findings published in IEEE TVCG.
- Developing automated data pipelines and evaluation frameworks for large language models (LLM), enabling real-time performance tracking, enhanced error detection, and improved reliability.
- Collaborated with cross-functional research team to design ML evaluation methodologies and experimental protocols for assessing model trustworthiness.

### **Visiting Researcher | University of Illinois Urbana-Champaign, Champaign, IL**

**May 2023 – Aug 2023**

- Researched federated learning models for non-IID data, emphasizing privacy and fairness in distributed ML systems.
- Designed and developed visual analytics system to assist expert to monitor federated learning model performance, privacy metrics, and deployment outcomes.

## **INDUSTRY EXPERIENCE**

### **Data Engineer Intern | Wayfair LLC, Boston, MA**

**July 2019 – Dec 2019**

- Engineered and maintained robust data pipelines and architectures using Python and SQL, ensuring data cube integrity and reliable analytics for the Promotion business unit.
- Developed a full-stack monitoring system (Flask, React) with real-time alerts and front-end interface, enhancing visibility, automation, and efficiency across data engineering workflows.

## **SELECTED PUBLICATIONS**

**Wang, Y.**, Zhao, J., Hong, J., Askin, R.G. and Maciejewski, R. (2024). A simulation-based approach for quantifying the impact of interactive label correction for machine learning. *IEEE Transactions on Visualization and Computer Graphics*.

Zhao, J., **Wang, Y.**, Mancenido, M.V., Chiou, E.K. and Maciejewski, R. (2023). Evaluating the impact of uncertainty visualization on model reliance. *IEEE Transactions on Visualization and Computer Graphics*.

**Wang, Y.**, Zhao, J., Ba, Y., Mancenido, M.V., Chiou, E.K. and Maciejewski, R. (2025). Impact of explainable AI on trust evolution with AI error severity: Comparing similar instances and saliency map. *International Journal of Human-Computer Interaction*.