Meric Altug Gemalmaz

gemalmaz.org | linkedin.com/in/meric-altug-gemalmaz | mgemalma@purdue.edu

Research Interests

Human-AI Interaction, Crowdsourcing and Human Computation, Applied AI, Fairness

Education

Purdue University, West Lafayette, Indiana

- Ph.D. in Computer Science **3.96/4.0** — Jan 2020 – Present
- M.S. in Computer Science (Transferred to Ph.D.) **3.93/4.0** — Jan 2019 – Dec 2019
- B.S. in Computer Science (Software Engineering Track, **Distinction**) **3.92/4.0**. — Aug 2015 – Dec 2018

Skills

Programming Languages: Python, C/C++, C#, JavaScript, Java, HTML/CSS, R, Bash
Machine Learning Tools: scikit-learn, NumPy, Pandas
Tools & Platforms: Git, Meteor.js, MongoDB, MTurk, Android SDK, Firebase
Soft Skills: Leadership, Teamwork, Time Management, Problem-Solving, Adaptability, Communication

Research in Progress and Under Review

[**W1**] **Meric Altug Gemalmaz**, Ming Yin. "An Investigation of Decision Subjects' Interaction with and Perceived Fairness of Daily Updated AI Managers." *(Work In Progress)*

[**W2**] **Meric Altug Gemalmaz**, Ming Yin. "Understanding Decision Subjects' Engagement with and Perceived Fairness of AI Models When Opportunities of Qualification Improvement Exist." *arXiv:2410.03126 (Under Review)*

Publications

[**P1**] **Meric Altug Gemalmaz**, Ming Yin. "Understanding Decision Subjects' Fairness Perceptions and Retention in Repeated Interactions with AI-Based Decision Systems." *Proceedings of the 5th AAAI/ACM Conference on AI, Ethics, and Society (AIES)*, Oxford, UK, August 2022.

[**P2**] **Meric Altug Gemalmaz**, Ming Yin. "Accounting for Confirmation Bias in Crowdsourced Label Aggregation." *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI)*, Online, August 2021.

Research Experience

Human-subject Experiments — Jan. 2020 – Present

- Coordinated **1,500+** human participants across **4+** research projects on **MTurk** for data collection and analysis.
- Developed and deployed web applications using **JavaScript** and the **Meteor.js** framework, managed back-end databases with **MongoDB**, and implemented front-end interfaces using **HTML** and **CSS**.
- Increased participant engagement and facilitated high-quality data collection by implementing interactive, scenario-based user interfaces, while ensuring robustness against bot attacks through effective security measures.

Exploring Fairness in Algorithmic Management [W1] — Dec. 2023 – Present

- Collaborating with gig workers to explore their long-term behavior toward AI-driven gig assignments with varying levels of fairness, aiming to encourage AI developers to make more responsible and inclusive design choices.

Understanding Decision Subjects' Fairness Perceptions and Engagement [W2, P1] — Mar. 2021 – Dec. 2023

- Conducted human-subject experiments to examine how loan applicants' repeated interactions with an AI-based loan approval system affect their fairness perceptions and willingness to continue engaging with the AI.
- Simulated loan applicants' AI interactions with a **Markov Decision Process** to estimate proper human-subject experiment parameters, then collected data to analyze real human-AI interactions with **regression analysis** to understand human behavior.
- Discovered a critical fairness issue: similar AI usage across demographics often hides unfairness, as people continue using biased models out of necessity, not fairness. This persistence challenges developers to rethink usage as a measure of model fairness.

Data Bias Mitigation Algorithm [P2] — Mar. 2020 – Mar. 2021

- Leveraged advanced unsupervised learning techniques to detect and mitigate cognitive bias in crowdsourced data annotations.
- Utilized **probabilistic graphical models** to model annotator bias and used the **Expectation-Maximization algorithm** to infer ground-truth annotations.
- Achieved over **10% increase** in inferred label accuracy over existing baselines through reduction in annotation bias.

Select Courses

Graduate Courses: Data Mining (A), Algorithm Design, Analysis, And Implementation (A+), Statistical Machine Learning (A-), Simulation And Modeling Of Computer Systems (A), Operating Systems (A)

Undergraduate Courses: Software Engr Senior Project (A), Software Engineering I (A), Object-Oriented Programming (A), Programming In C (A+), Foundations Of Computer Science (A-)

Teaching Experience

Graduate Teaching Assistant, Purdue University Jan. 2019 – Present

- **Courses:** Data Mining (2 semesters), Systems Programming (4 semesters), Computer Architecture (3 semesters).
- Led lab sections each semester for **50+** students, supervised **10+** undergraduate TAs, collaborated with GTAs to develop teaching materials, and managed administrative responsibilities.
- Received excellent teaching evaluations and awarded multiple teaching awards for leadership, communication, and adaptability.
- **Guest lecturer** on Human-Computer Interaction; Lecture on AI Ethics and Fairness
- **Guest lecturer** on Systems Programming; Lecture on Implementation of a Concurrent Web Server

Undergraduate Teaching Assistant, Purdue University Jan. 2018 – Dec. 2018

- **Courses:** Systems Programming (2 semesters), Operating Systems (1 semester).
- Supported lab sessions, provided individualized student support, and collaborated on grading assignments.
- Developed scripts in **Bash** to streamline the evaluation process.

Honors and Awards

The Graduate Teaching Award 2022

- Recognized for exceptional teaching and leadership in graduate level Data Mining course. Awarded based on positive feedback from faculty and students, highlighting approachability, support, and ability to clarify complex concepts.

Raymond Boyce Graduate Teaching Award 2020

- Honored for outstanding contributions to the Computer Architecture course. Received recognition on a permanent plaque in the Lawson Computer Science Building.

Graduated with Distinction, B.S. in Computer Science 2018

- Awarded to the top **10%** of undergraduate Computer Science students, recognizing exceptional academic performance with a GPA ranking in the 90th percentile of the graduating class.

Dean's List and Semester Honors (8 Semesters) Aug. 2015 – Dec. 2018

- Placed consistently on the Dean's List and received Semester Honors during all semesters of the CS undergraduate program.

Reviewer

Conference Reviewer; *Outstanding Reviewer Recognition
ACM CHI: 2024*

Program Committee Member
ACM IUI: 2025

References

Prof. Ming Yin
Computer Science, Purdue University
Areas: Human-AI Interaction, Crowdsouring
mingyin@purdue.edu

Prof. Sooyeon Jeong
Computer Science, Purdue University
Areas: Human-Robot Interaction, Social Robotics
sooyeonj@purdue.edu

Prof. Dan Goldwasser
Computer Science, Purdue University
Areas: NLP, Large Language Models, Machine Learning
dgoldwas@purdue.edu

Prof. Chris Clifton
Computer Science, Purdue University
Areas: Data Privacy, Data Mining, Database Systems
clifton@cs.purdue.edu