

Aimen Gaba

✉ agaba@umass.edu | 🏠 www.aimengaba.com | 🔗 linkedin.com/in/aimengaba | 🎓 Google Scholar

Education

University of Massachusetts Amherst

PhD in Computer Science

Amherst, MA, USA

Sep 2021 - May 2026 (expected)

- **Thesis:** Advancing Responsible & Trustworthy AI Using Human-Centered Methods
- **Advisors:** Dr. Cindy Xiong Bearfield, Dr. Yuriy Brun
- Achieved PhD candidacy with **distinction**

University of Massachusetts Amherst

MS in Computer Science, GPA: 3.9

Amherst, MA, USA

Sep 2021 - Dec 2023

- **Courses:** Advanced Methods in HCI, Introduction to Neural Networks, Making Sense of Visual Information, Research Methods

Work Experience

Adobe Research

Research Scientist/Engineer Intern

College Park, MD, USA

May 2024 - Aug 2024

- **Team:** Document Intelligence Lab
- Designed a novel prototype integrating **Search and Generative AI**; partnered with **3 cross-functional teams** to test 2 early-stage concepts in document-grounded workflows.
- Led a 20+ **participant mixed-methods study**, combining **usability interviews** and **likert-scale usability ratings**; applied **thematic analysis** to extract qualitative insights and **ANOVA** to uncover statistically significant differences in user preferences across tasks
- Findings informed **key design and prioritization decisions**.

University of Massachusetts Amherst

Graduate Researcher

Amherst, MA, USA

Sep 2021 - Present

- Conducted **24 in-depth interviews** with participants across diverse gender identities to explore the impact of bias in **large language models (LLMs)** on trust and decision-making; analyzed 160+ ChatGPT responses using systematic prompt engineering and comparative evaluation; **developed design guidelines** for fairness and inclusivity in AI systems.
- Analyzed how **visualization design** impacts user trade-offs between fairness and accuracy in ML-assisted decisions; conducted a **survey** with 1500+ participants, applying ANOVA and **logistic regression** to identify gender-based decision patterns and model trust dynamics.
- Created a visualization design framework for ambiguous natural language comparison queries; derived **design implications** from **16** interviews with visualization experts & non-experts, and validated the framework through a **preference-ranking study** with 70+ participants.

Carnegie Mellon University

Visiting Researcher

Pittsburgh, PA, USA

Jul 2023 - Aug 2023

- Initiated and led a **longitudinal speculative design study** empowering blind participants as designers of assistive technologies; conducted **18** interviews and a **4-week-long remote design study** with 12 participants, providing accessible materials and structured support to facilitate self-directed prototyping and innovation.

Honors & Awards

2025	MIT Rising Star in EECS , MIT	Boston, USA
2025	UMass Dissertation Writing Fellowship , University of Massachusetts Amherst	Amherst, USA
2024	GHC Scholar (UMass CICS Scholarship) , Grace Hopper Celebration	Philadelphia, USA
2023	Tapia Scholar (UMass CICS Scholarship) , ACM Richard Tapia Conference	Dallas, USA
2022	CRA Scholar , CRA-WP for IDEALS	San Diego, USA
2022	\$10,000 Research Scholarship , Adobe Research	Amherst, USA
2021	\$4,000 CICS PhD Scholarship , University of Massachusetts Amherst	Amherst, USA

Publications

Bias, Accuracy, and Trust: Gender-Diverse Perspectives on Large Language Models

[Aimen Gaba](#), Emily Wall, Tejas Ramkumar Babu, Kyle Hall, Yuriy Brun, and Cindy Xiong Bearfield

arXiv 2025

Under Review (FAcct'26)

Beyond "Disability-Centered:" Empowering Blind-Led Innovation of Assistive Technology

[Aimen Gaba](#), Frank Elavsky, Lucas Nadolskis, Patrick Carrington, Dominik Moritz, and Cindy Xiong Bearfield

ASSETS 2026

In Preparation

My Model is Unfair, Do People Even Care? Visual Design Affects Trust and Perceived Bias in Machine Learning

IEEE VIS

[Aimen Gaba](#), Zhanna Kaufman, Jason Cheung, Marie Shvakel, Kyle Hall, Yuriy Brun, and Cindy Xiong Bearfield

Oct 2023

Reasoning Affordances with Tables and Bar Charts

IEEE TVCG

Cindy Xiong, Elsie Lee Robbins, Icy Zhang, [Aimen Gaba](#), and Steven Franconeri

Oct 2023

Comparison Conundrum and the Chamber of Visualizations: An Exploration of How Language Influences Visual Design

IEEE VIS

[Aimen Gaba](#), Vidya Setlur, Arjun Srinivasan, Jane Hoffswell, and Cindy Xiong

Oct 2022

How Do We Measure Trust in Visual Data Communication?

IEEE BELIV

Hamza Elhamedi, [Aimen Gaba](#), Yea-Seul Kim, and Cindy Xiong

Oct 2022

Capturing the Gist: How Data Approximation Algorithms Align with Human Perception in Time-Series Visualizations

IEEE TVCG 2026

Yishu Ji, [Aimen Gaba](#), Reid Laughton, Duen Horng (Polo) Chau, and Cindy Xiong Bearfield

Under Review

Tulna: A Chain-of-Thought Approach for Interpreting Natural Language Comparisons in Visual Analytics

Vidya Setlur, Kylie Lin, [Aimen Gaba](#), and Cindy Xiong Bearfield

In Preparation

Teaching Experience

University of Massachusetts Amherst

Amherst, MA, USA

Teaching Assistant, COMPSCI 625: Advanced Methods in Human-Computer Interaction

Spring 2026

- Making course schedule, & assignments. Provide substantive feedback on research projects and evaluating students' weekly scholarly analyses.

University of Massachusetts Amherst

Amherst, MA, USA

Teaching Assistant, CS 490U: Introduction to UX Research

Spring 2022 & Spring 2023

- Delivered multiple guest lectures for a class of 50+ students, focusing on UX research practices and R for data analysis. Evaluated 30+ student projects and provided personalized feedback. Supported student learning through weekly office hours and ongoing Q&A.

Lahore University of Management Sciences

Lahore, Pakistan

Teaching Assistant, CS 320: Computer Organization and Assembly Language

Fall 2017

- Served as the sole Teaching Assistant for 20+ students; designed and graded assignments, quizzes, and final projects involving Assembly language, and Proteus. Conducted weekly lab sessions and held regular office hours to provide technical guidance.

Mentoring Experience

Current **Yishu Ji**, CS PhD Student at Georgia Institute of Technology

2024-25 **Tejaswini Ramkumar Babu**, Senior CS undergraduate at Georgia Institute of Technology

2022-23 **Jason Cheung**, Senior CS undergraduate at UMass Amherst

2021-22 **Shubham Mishra**, CS Master's student at UMass Amherst

2021-22 **Nisarga Patel**, CS undergraduate at UMass Amherst

Service

Current **Responsible Technology Coalition Leadership**, University of Massachusetts Amherst

Amherst, USA

2023-24 **Faculty Hiring Graduate Representative**, University of Massachusetts Amherst

Amherst, USA

2021-23 **CSWomen Social Events Coordinator**, University of Massachusetts Amherst

Amherst, USA

2022 **Visiting Graduate Student with Jamie Morgenstern**, University of Washington

Seattle, USA

2022 **Student Volunteer at Undergraduate Research Night**, University of Massachusetts Amherst

Amherst, USA

2021 **Student Volunteer**, IEEE VIS

Virtual Conference

Program Committee & Reviewing

- ACM FAccT** Full paper reviewer, 2026
- Pacific VIS** Visual Data Storytelling Contest reviewer, 2025 & 2026
- EURO VIS** Full paper reviewer, 2026
- ACM CHI** Full paper reviewer, 2024 & 2026
- IEEE VIS** Full paper reviewer (2023), BELIV Workshop reviewer (2024)
- Info Plus** Program Committee (PC) member, 2025

Skills

- Programming** Python (Pandas, NumPy, PyTorch), R, Vega-Lite, C++, D3, HTML/CSS
- ML / AI** Neural network fundamentals, Model training & Evaluation, PyTorch, Prompt Engineering & Systemic Analysis
- User Research** Mixed-Methods Research, Formative & Summative Design, Interviews, Surveys, Cognitive Walkthroughs, Participant Recruitment
- Human Factors** Perception & Decision-Making, Task & Workflow Analysis, HFE Principles, Accessibility (WCAG/POUR)
- Analysis** Statistical Analysis (ANOVA, t-test, Regression), Thematic Analysis, Affinity Mapping, Survey Analysis, Bootstrapping
- Tools** Qualtrics, NVivo, Figma, Tableau, R Studio, Miro, Adobe Suite, Android Studio