

Aimen Gaba

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Research Interests

Human-Computer Interaction (HCI), Human-Centered AI, Human Factors, Information Visualization, and Accessibility.

Education

University of Massachusetts Amherst

Amherst, MA, USA

PhD in Computer Science

Sep 2021 - Sep 2025 (expected)

- **Thesis:** Towards Responsible & Trustworthy AI Using Human-Centered Evaluation
- **Advisors:** Dr. Cindy Xiong Bearfield, Dr. Yuriy Brun
- **Interests:** HCI, Human-Centered AI, Responsible AI, Data Visualization, Human Perception, Natural Language
- Achieved PhD candidacy with **distinction**

University of Massachusetts Amherst

Amherst, MA, USA

MS in Computer Science, GPA: 3.9

Sep 2021 - Dec 2023

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

Work Experience

Adobe Research

College Park, MD, USA

Research Scientist/Engineer Intern

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

Amherst, MA, USA

Graduate Research Assistant

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; **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.
- Created a visualization design framework for ambiguous natural language comparison queries; derived **design implications** from **12** interviews with visualization experts & non-experts, and validated the framework through a **preference-ranking study** with **70+** participants.

Carnegie Mellon University

Pittsburgh, PA, USA

Visiting Researcher

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.

Tower Technologies (Pvt.) Ltd

Lahore, Pakistan

UX/UI Designer

Jun 2019 - Mar 2020

- Designed digital platforms for a major education group (Punjab Colleges, Allied Schools) by collaborating with developers, marketers, and end users; created user personas, storyboards, and user flows grounded in research insights.
- Built and tested low- to high-fidelity prototypes through **10+ usability sessions**, iteratively refining designs and presenting findings to senior leadership to inform product direction and improve user experience.

Publications

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

IEEE VIS, Melbourne, Australia

Aimen Gaba, Zhanna Kaufman, Jason Cheung, Marie Shvaker, Kyle Hall, Yuriy Brun, and Cindy Xiong Bearfield

Oct 2023

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

IEEE VIS, Oklahoma, USA

Aimen Gaba, Vidya Setlur, Arjun Srinivasan, Jane Hoffswell, and Cindy Xiong

Oct 2022

How Do We Measure Trust in Visual Data Communication?

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

IEEE BELIV, Oklahoma, USA

Oct 2022

Reasoning Affordances with Tables and Bar Charts

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

IEEE TVCG, Melbourne, Australia

Oct 2023

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

CSCW 2026

Under Review

How Do Blind Individuals Perceive, Design, & Innovate Assistive Technology Using Human-Centered Design

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

CHI 2026

In Preparation

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

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

IUI 2026

In Preparation

Skills

Programming	Python (Pandas, NumPy), R, Vega-Lite, C++, JavaScript, D3, HTML/CSS
User Research	Mixed-Methods Research (Qualitative & Quantitative), Study Design, User Interviews, Surveys, Usability Testing, UX Design
Analysis	Statistical Analysis (ANOVA, t-test, Regression), Bootstrapping, Thematic Analysis, Survey Analysis
Tools	Figma, Tableau, R Studio, Adobe InDesign, Adobe Photoshop, Android Studio, Canva, Miro

Teaching Experience

University of Massachusetts Amherst

Amherst, MA, USA

Teaching Assistant

Spring 2022 & Spring 2023

- **Course:** Introduction to UX Research (CS 490U)
- Led 2+ 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

Fall 2017

- **Course:** Computer Organization and Assembly Language (CS320)
- 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.

Awards & Honors

Current	Responsible Technology Coalition Leadership Team Member , University of Massachusetts Amherst	Amherst, USA
2024	GHC Scholar (UMass CICS Scholarship) , Grace Hopper Celebration	Philadelphia, USA
2021-23	CSWomen Social Events Coordinator , University of Massachusetts Amherst	Amherst, USA
2023	Tapia Scholar (UMass CICS Scholarship) , ACM Richard Tapia Conference	Dallas, USA
2022	CRA Scholar , CRA-WP for IDEALS	San Diego, 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	\$10,000 Research Scholarship , Adobe Research	Amherst, USA
2021	\$4,000 CICS PhD Scholarship , University of Massachusetts Amherst	Amherst, USA