Aimen Gaba

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

Research Interests

Human-Computer Interaction (HCI), Human-Centered AI, Data Visualization, Natural Language, and Accessibility.

Education

University of Massachusetts Amherst   *Amherst, MA, USA*

PhD in Computer Science   *Sep 2021 - Fall 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 Researcher   *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 Shvakel, 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? *IEEE BELIV, Oklahoma, USA*
Hamza Elhamdadi, <u>Aimen Gaba</u>, Yea-Seul Kim, and Cindy Xiong *Oct 2022*

Reasoning Affordances with Tables and Bar Charts *IEEE TVCG, Melbourne, Australia*
Cindy Xiong, Elsie Lee Robbins, Icy Zhang, <u>Aimen Gaba</u>, and Steven Franconeri *Oct 2023*

Bias, Accuracy, and Trust: Gender-Diverse Perspectives on Large Language Models *CSCW 2026*
<u>Aimen Gaba</u>, Emily Wall, Tejas Ramkumar Babu, Kyle Hall, Yuriy Brun, and Cindy Xiong Bearfield *Under Review*

How Do Blind Individuals Perceive, Design, & Innovate Assistive Technology Using Human-Centered Design *CHI 2026*
<u>Aimen Gaba</u>, Frank Elavsky, Lucas Nadolskis, Dominik Moritz, and Cindy Xiong Bearfield *In Preparation*

Tulna: A Chain-of-Thought Approach for Interpreting Natural Language Comparisons in Visual Analytics *IUI 2026*
Vidya Setlur, <u>Aimen Gaba</u>, Kylie Lin, and Cindy Xiong Bearfield *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, Keynote

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

Fall 2025	**UMass Dissertation Fellowship**, University of Massachusetts Amherst	*Amherst, USA*
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*