

Aimen Gaba

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

Research Interests

I work at the intersection of Human-Computer Interaction and Data Visualization. I investigate how visual design affects trust and bias in machine learning models as well as how people understand biases in large language models. I am also exploring to design and create interactive alt-text experiences for BLV users.

Education

University of Massachusetts Amherst

MS/PhD in Computer Science, GPA: 3.89

Amherst, USA

Sept 2021 - Current

- **Interests:** HCI, Data Visualization, Natural Language Interface, Fairness in ML Models.
- **Courses:** Advanced Methods in HCI, Introduction to Neural Networks, Making Sense of Visual Information, Research Methods

Lahore University of Management Sciences

BS in Computer Science

Lahore, Pakistan

Aug 2014 - Jun 2018

- **Interests:** HCI, Affective Computing, Context-Aware Tools, Ed-Tech, Health Informatics
- **Courses:** Human-Computer Interaction, Computer Graphics, Topics in Interactive Computing

Work Experience

University of Massachusetts Amherst

Research Assistant

Amherst, USA

Sep 2021 - Jul 2023

- I work with **Dr. Cindy Xiong** on natural language recommendation systems and how they can better understand the ambiguity and complexity of comparison queries to recommend a visualization that best aligns with the user's intent. I also collaborate with **Dr. Yuriy Brun** to investigate how perceived fairness in ML models influences users' trust in these models.
- **Skills:** R, Python, Survey design, User Research, Design Sprints, Statistical Analysis, User Interviews, HTML/CSS, JavaScript, D3.

University of Massachusetts Amherst

Teaching Assistant

Amherst, USA

Jan 2023 - Jun 2023

- TA for **Introduction to UX Research (CS490U)** taught by Dr. Cindy Xiong.
- **Skills:** RStudio with RMarkdowns, ggplots2, Statistical analysis in R, User-centered Design.

Tower Technologies (Pvt.) Ltd

UX/UI Designer

Lahore, Pakistan

Jun 2019 - Mar 2020

- Constructed user personas and storyboards by conducting user research, formulated the solution with user flow diagrams and brainstorming, built the lo-fi prototypes and wire-frames, and eventually hi-fi prototypes iteratively tested by the users.
- **Skills:** User Experience (UX), Design Thinking, Adobe Photoshop, Lowfi & Hi-fi Prototyping, Leadership, User studies, Tool Evaluation.

Educative Inc.

Developer Advocate

Lahore, Pakistan

Feb 2019 - Jun 2019

- Designed a course on front-end development in AngularJS, with coding challenges, illustrations, and a final course project to create an interactive to-do list web app. Spearheaded the creation of a course teaching the basics of recursion in Java step-by-step to solve hard coding challenges.
- **Skills:** AngularJS, Java, Teamwork, Communication.

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, Aimen Gaba, Yea-Seul Kim, and Cindy Xiong

Oct 2022

Additional Project Experience

Trust and Fairness in Machine Learning Models

Amherst, USA

University of Massachusetts Amherst

May 2022 - Current

- Research with **Dr. Cindy Xiong** and **Dr. Yuriy Brun** to look into how individuals' trust in machine learning models varies as their accuracy and fairness are varied, particularly investigating gender fairness.
- Skills:** R (ggplot2), Python (pandas), Statistical Analysis, Survey design, Study design, Documentation.

QuickBuy: Aiding Fast Decision Makers with Online Shopping

Amherst, USA

University of Massachusetts Amherst

Jan 2022 - May 2022

- A tool that allows ordering products while shopping online with minimal cognitive load using psychological heuristics. Using this tool, users reported less information overload and mental fatigue as compared to online retailers such as Amazon.
- Skills:** Prototyping, Adobe InDesign, Framer, Teamwork, Technical Writing, Literature Review, Evaluation.

Raabta: Augmentative and Alternative Communication (AAC) for Special Children

Lahore, Pakistan

Lahore University of Management Sciences

Jan 2018 - May 2018

- A tool to explore context-aware augmented and alternative communication (AAC) systems for children with intellectual disabilities, with a primary focus on Autism and Cerebral Palsy. Thorough literature review, interviews and focus groups were carried out to understand the needs of special children, speech therapists, and teachers. The effectiveness of the tool was evaluated through questionnaire and informal interviews.
- Skills:** Prototyping, HTML/CSS, JavaScript, iBeacons, User study, Literature Review.

BloodHub: Connecting Donors to Patients

Lahore, Pakistan

Lahore University of Management Sciences

Sep 2016 - Dec 2016

- Designed and developed an **Android application** to connect blood donors to patients in Pakistan. The application implemented an optimum working platform developed through an in-depth analysis of user study, using the design process for analysis, prototyping, testing, and implementation.
- Skills:** Android Studio, XML, JavaScript, Lowfi & Hifi prototyping, User studies, Study Evaluation, Design Thinking.

Achievements

2021 - Cur **CSWomen Social Events Coordinator**, UMass Amherst

Amherst, USA

2023 **Visiting Graduate Student with Dominik Moritz**, Carnegie Mellon University

Pittsburgh, USA

2022 **Attendee**, 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 **Student Volunteer**, IEEE VIS

Virtual Conference

2021 **\$10,000 Scholarship**, Adobe Research

Amherst, USA

2021 **\$4,000 CICS PhD Scholarship**, University of Massachusetts Amherst

Amherst, USA

Skills

Programming Python (Pandas, PyTorch, NumPy), Vega-Lite, R(ggplot2), C++, HTML/CSS, D3, JavaScript.

Miscellaneous Shell (Bash/Zsh), \LaTeX (Overleaf/R Markdown), Tableau, Microsoft Office, Firebase, Git.

Soft Skills Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.