

# Zainab Iftikhar

PHD CANDIDATE · HUMAN-COMPUTER INTERACTION · COMPUTATIONAL SOCIAL SCIENCE

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## Education

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### Brown University

PH.D. IN COMPUTER SCIENCE

Advisor: Jeff Huang

Providence, RI

2021 – Present

### National University of Computer & Emerging Sciences (NUCES)

B.SC. COMPUTER SCIENCE

Cum Laude | Top 5 Students | Dean's List 2014 - '18 | Silver Medalist (x3)

Coursework: HCI, Artificial Intelligence, Software Engineering, Design & Analysis of Algorithms

Lahore, PK

2014 – 2018

## Selected Publications

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\* denotes equal contribution

(in review) **Zainab Iftikhar**, Sean Ransom, Amy Xiao, Jef Huang. 2025. Therapy as an NLP Task: Psychologists' Comparison of LLMs and Human Peers in CBT. CHI '25. [\[pdf\]](#) [\[website\]](#)

Sara Syed\*, **Zainab Iftikhar\***, Amy Xiao, Jef Huang. 2024. Machine and Human Interpretation of Empathy in Online Peer Support: A Cognitive Behavioral Approach. CHI '24. [\[pdf\]](#) [\[website\]](#)

**Zainab Iftikhar**, Yumeng Ma, Jeff Huang. 2023. "Together but not together": Evaluating Typing Indicators for Interaction-Rich Communication. CHI '23. [\[pdf\]](#) [\[code\]](#)

**Zainab Iftikhar**, Qutaiba Rohan ul Haq, Osama Younus, Taha Sardar, Hammad Arif, Mobin Javed, Suleman Shahid. 2021. Designing Parental Monitoring and Control Technology: A Systematic Review. INTERACT '21. [\[pdf\]](#)

## JOURNALS

Mahmoud Elkhodr, Omar Mubin, **Zainab Iftikhar**, Maleeha Masood et al. 2021. Technology, Privacy, & User Opinions of COVID-19 Mobile Apps for Contact Tracing: Systematic Search & Content Analysis. JMIR '21. [\[pdf\]](#)

## WORKSHOPS, EXTENDED ABSTRACTS & PROGRAM POSTERS

Suleman Shahid, **Zainab Iftikhar**, Rabiah Arshad, Omar Mubin, Abdullah Al Mahmud. Child-Computer Interaction in the Global South. IDC '21. [\[pdf\]](#)

Yitian Cao, **Zainab Iftikhar**, Amy Greenwald, Biases in "fair" hiring algorithms: A Fairness Analysis. ExploreCSR '22: Socially Responsible Artificial Intelligence partnered with Google Research. [\[pdf\]](#)

Manar Abdelatty, Zainab Iftikhar, Titas Grusnius, Tyler Jacobson. Biases in "fair" hiring algorithms: Attention-Based Object Detection: A Scalable Re-implementation. Deep Learning Day '22. [\[pdf\]](#)

## Research Projects

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### OPEN SOURCE

**Live Typing**. 2022. Real-time typing indicators to increase social presence for improved collaboration & task performance.

App: <https://www.npmjs.com/package/live-typing>

Code: <https://github.com/brownhci/live-typing>

### SYSTEMS

**Sochiatrist**. 2021 – Present. A social data extractor to predict signals of self-reflection from social media & messaging data.

App: <https://sochiatrist.cs.brown.edu/>

**Cheeserburger Therapy.** 2021 – Present. An accessible chat-based platform that provides peer support through Cognitive Behavioral Therapy (CBT) to scale mental health support.  
App: <https://cheeserburgertherapy.org>

**Virtual Showdown.** 2021. An accessible virtual reality game for Pakistani visually impaired youth customized by examining the contextual changes in existing VR systems and the difference in body movement strategies

**Corona Assisted.** 2021. Pakistan's first web-based chat and awareness platform in English and Urdu that integrates explainable Artificial Intelligence (XAI) for fact-checking information on COVID-19.  
App: <https://corona.assisted.pk/en>

**HumQadam.** 2021. Pakistan's first question-answer awareness system (NLP) in English and Urdu to empower women regarding legal actions to take for gender-based violence and a referral directory for contact.  
App: [https://play.google.com/store/apps/details?id=com.haris\\_muneer.humqadam](https://play.google.com/store/apps/details?id=com.haris_muneer.humqadam)

## Research Experience

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### **Brown University**

*Providence, RI*

ADVISOR: JEFF HUANG

*2021 - Present*

- Evaluating systems to improve human-AI interaction in healthcare, wellness and mental health contexts
- Working on text-based systems across social media and messaging channels to analyze, visualize, and understand communication patterns for improved collaboration and task performance
- Integrating machine learning algorithms with social data analysis to uncover insights into human interconnectedness, self-reflection and collaboration for translating complex data into actionable reflection

### **Lahore University of Management Sciences**

*Lahore, PK*

CO-ADVISORS: SULEMAN SHAHID, MOBIN JAVED

*2019-2021*

- Designed, developed, and evaluated AI-based, ethically conscious social support healthcare interactive systems for individuals with disabilities in Pakistan.
- Successfully transitioned seven research applications, including three web-based, two mobile and two AR/VR systems, into production by conducting mixed-methods research.

### **National University of Computer & Emerging Sciences**

*Lahore, PK*

CO-ADVISORS: MEHREEN SAEED, MUBASHER BAIG

*2014-2018*

- Honor's Thesis: Assessing Reliability, Trust and Transparency in Multi-Modal Hiring Algorithms [pdf]
- Implemented multimodal ML system to assess candidate personality from visual, audio and interview speech using NumPy, TensorFlow, PyTorch and NLTK. Employed debiasing techniques to ensure fair and equitable decision-making

## Industry Experience

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### **Lahore University of Management Sciences**

*Lahore, PK*

PRODUCT LEAD

*2019 - 2021*

- Leading the research team in HCI Lab for Inclusion, Well-being and Learning Lab, I designed, developed and launched web, mobile and VR/AR health systems for neuro-divergent children, elderly suffering from dementia, visually impaired and low-literate populations in Pakistan

### **Pantera Energy**

*Lahore, PK*

SOFTWARE ENGINEER

*2017 - 2019*

- Developed Pantera energy Saver, using Flask, MongoDB and Angular, to optimize solar systems' performance through data analysis and algorithmic improvements, resulting in a 10% increase in energy efficiency and 15% reduction in costs
- Build ML-based predictive maintenance algorithms, reducing system downtime by 20% and minimizing on-site maintenance visits by 30%

## Teaching Experience

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2022 – 2023 **NSF REU: AI for Computational Creativity**, Study Group Leader, Brown University  
Spring '21 **Topics in Human-Computer Interaction**, Teaching Assistant, LUMS  
Spring '21 **Computer Networks**, Teaching Fellow Position, NUCES  
2019 – 2020 **Design & Analysis of Algorithms**, Teaching Assistant, NUCES  
2019 – 2020 **Artificial Intelligence**, Teaching Assistant, NUCES  
Spring '18 **Human Computer Interaction**, Teaching Assistant, NUCES

## Awards, Fellowships, & Grants

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2023 **Paris Kanellakis Graduate Fellowship Award**, Brown University  
2023 **Conference Travel Fund, International Travel Fund (both for CHI'23)**, Brown University  
2022 **Grace Hopper Celebration of Women Scholarship**, Brown University  
2021 **Conference Travel Fund (INTERACT'21)**, National Centre for Cyber Security  
2020 **Leadership Award, Promoted to Product Lead**, Lahore University of Management Sciences  
2019 **Performance Excellence Award**, Pantera Energy  
  
2018 **Outstanding Undergraduate Researcher Honorable Mention**, NUCES  
**Academic Excellence Award (Silver Medalist) x3**, NUCES

## Invited Talks and Press

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### INVITED TALKS

Jan 2024. Re-imagining Mental Health Access: The Role of Human, AI and Design. Carnegie Mellon University

### PRESS

May 2024. "Brown CS PhD Student Zainab Iftikhar Asks How Machines Understand Empathy", Brown CS

July 2023. "What Are You Typing? Enhancing Digital Communication Through Rich Typing Indicators", Brown CS

Apr 2021. "Corona Assisted: A Website with a Mission", Lahore University of Management Sciences

Feb 2021. "Launch of Humqadam App by Shirkat Gah — A Resource and Safety App For Women Across Pakistan", Medium

Apr 2020. "Three apps unveiled to support autistic children", The Express Tribune

## Mentorship

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2023 – 2024 **Amy Xiao**, Brown HCI Lab  
2022 – 2023 **Yumeng Ma**, Brown HCI Lab, now a Ph.D. Student at University of Washington  
Fall '22 **Jieyun Li**, Brown HCI Lab  
2021 – 2022 **Sara Syed**, Brown HCI Lab, now at Goldman Sachs  
Spring '22 **Yitian Cao**, ExploreCSR, now a Master's Student at University of Pennsylvania  
  
2020 – 2021 **Abdul Moeed Asad**, LUMS HCI Lab, now a Master's Student at Purdue  
**Ali Asghar Aamir**, LUMS HCI Lab, now a Master's Student at Purdue  
**Mehreen Masood**, LUMS HCI Lab, now a Ph.D. Student at UC Irvine  
**Maleeha Masood**, LUMS HCI Lab, now a Ph.D. Student at Illinois Urbana-Champaign

## Service, Outreach and Review

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2023 – 2024 **Leader**, Graduate Outdoor Adventure Program, Brown University  
2023 – 2024 **PhD Student Liaison**, Muslim Student Association, Brown University  
2022 – 2024 **PhD Student Representative**, Diversity and Inclusion Initiative, Brown University  
2023 **Session Chair**, ACM CHI  
2021 – 2024 **Peer Reviewer**, ACM CHI (x4), ACM CSCW (x4)

## Skills

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**Programming:** Python, C++, Java, React, JavaScript, Node.js, Angular, MySQL

**Practices/Tools:** Tensorflow, PyTorch, Pandas, Sklearn, spaCy, NumPy, NLTK, Docker, EC2, Flask, AWS Lambda, Heroku

**HCI Research methods:** Experimental Design, Qualitative Analysis, Mixed methods, Log Analysis, Interview, Surveys, Contextual Inquiry, Usability Study, Thematic Analysis, Grounded Theory