Zainab Iftikhar

PhD Candidate · Human-Computer Interaction · Machine Learning

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Education

Brown University   *Providence, RI*
Ph.D. in Computer Science   *2021 – 2027*
  Advisor: Jeff Huang

Brown University   *Providence, RI*
Sc.M in Computer Science   *2021 – 2023*
  Coursework: Computational Linguistics, Deep Learning, Data Science, HCI Seminar, UI/UX

National University of Computer & Emerging Sciences (NUCES)   *Lahore, PK*
B.Sc. Computer Science   *2014 – 2018*
  Cum Laude | Dean's List 2014 - '18 | Silver Medalist (x3)
  Coursework: HCI, Artificial Intelligence, Software Engineering, Design & Analysis of Algorithms

Publications

* denotes equal contribution

Conferences

(in review) **Zainab Iftikhar**, Sean Ransom, Amy Xiao, Jeff Huang. 2024. Evaluating Peer and Large Language Model's (LLM) Responses in Online Cognitive Behavioral Therapy Sessions. CSCW '24.

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.

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

(in review) **Zainab Iftikhar**, Rabiah Arshad, Suleman Shahid. 2023. Enhancing User Engagement in mHealth for Depression Management & Behavior Change: A Systematic Review of Persuasive Design Principles. BIT '24.

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. 2021. Child-Computer Interaction in the Global South: IDC '21. [pdf]

Yitian Cao, **Zainab Iftikhar**, Amy Greenwald. 2022. 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 (2022) Attention-Based Object Detection: A Scalable Re-implementation. Deep Learning Day '22. [pdf]

Research Experience

Brown University   *Providence, RI*
ADVISOR: JEFF HUANG   *2021 - Present*
- Developing 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

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 prototypes, including three web-based, two Android applications 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

Research Projects

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://cheeseburgertherapy.org

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

Industry Experience

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%

Awards, Fellowships, & Grants

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
	100 Minutes of Code, IEEE

Teaching Experience

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

Research Mentorship

2023 – 2024	**Amy Xiao**, Brown HCI Lab
2022 – 2023	**Jieyun Li**, Brown HCI Lab
2021 – 2022	**Sara Syed, now at Goldman Sachs**, Brown HCI Lab
2022 – 2023	**Yumeng Ma**, Distributed Research Experiences for Undergraduates (DREU)
Spring '22	**Yitian Cao**, ExploreCSR, now at Goldman Sachs
2020 – 2021	**Abdul Moeed Asad**, LUMS HCI Lab, now at Purdue
	Ali Asghar Aamir, LUMS HCI Lab, now at Purdue
	Mehreen Masood, LUMS HCI Lab, now a Ph.D. Student at UC Irvine

Service, Outreach and Review

2023 – 2024	**Leader**, Graduate Outdoor Adventure Program, Brown University
2023 – 2024	**PhD Student Liaison**, Muslim Student Association, Brown University
2022 – 2023	**PhD Student Representative**, Diversity and Inclusion Initiative, Brown University
2023	**Session Chair**, ACM CHI
2021 – 2024	**Peer Reviewer**, ACM CHI (x4), ACM CSCW (x1)

Skills

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

Practices/Tools: Tensorflow, PyTorch, NLTK, Github, Pandas, Sklearn, Flask, AWS Lambda, Heroku, Fine-tuning

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