Javaria Hassan

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Languages and Frameworks

- **Most Experience:** Python• JavaScript • C++ • HTML5/CSS3 • Figma
- **Some Experience:** Haskell • Golang • PHP • SQL • Unity • C#
- **Frameworks:** Flask • Vue.js • Node.js • React JS • React Native

Education

Harvard University 09/2021 – 05/2022
Master of Science in Technology, Innovation and Learning Design. **CGPA 4.00.** Massachusetts, US

Massachusetts Institute of Technology 09/2021 – 12/2021
Cross-Registered Student at the Media Lab, Affective Computing Group Massachusetts, US

Lahore University of Management Sciences (LUMS) 09/2016 – 05/2020
Bachelor of Science in Computer Science. Lahore, Pakistan

Work Experience

- **Fullstack Software Engineer** 06/2020 – Present
  at the **Learning, Innovation and Technology Lab** at **Harvard University** Massachusetts, US

  Team Lead, Multimodal Data Toolkit Web Application. mmla.gse.harvard.edu
  - Led the development of a data-collection web application for a team consisting of 4 engineers and a designer to transform an in-person Data Science class experience into a fully online format during the COVID pandemic.
  - Conducted user research, gathered product requirements, and defined product roadmaps.
  - Developed the app using **HTML5**, **CSS3**, **JavaScript**, **Tensorflow.js**, **RESTful APIs**, **Python**, **Flask,** and **OpenCV**.
  - Deployed the application on an **Ubuntu VPS** with an **Apache HTTP server**.
  - Cut down classroom costs **from $2000+ in physical sensors to $0 in webcam-based sensing** in the browser using **JavaScript Machine Learning models**.
  - Spearheaded the product launch; the app has now been used by **100+ Harvard graduate students**.

  Team Lead, Learning Portal Web Application. lp.gse.harvard.edu (Restricted to Harvard network)
  - Led the development of an educational web application for a semester-long Multimodal Analytics course offered to Harvard graduate students. The app provides video lectures to students and consensually captures **extensive physiological and emotional data** in the background for research purposes.
  - Built the MVP from the ground up within a 1-month deadline.
  - Designed the user experience by **building user journeys**, **prototyping**, and **running usability tests**.
  - Implemented **Firebase authentication** and managed a **Firebase NoSQL Cloud Database** in Python.
  - Tracked and mitigated technical problems, including issues around SSO, security, and server configurations.
  - Computed measures of visual attention, emotional response, and body movement between students and the instructor to test the mediatory effect of these measures on learning.

- **Software Engineer** at **Data Science Dojo** 10/2020 – 05/2021
  - Co-led the redesign and development of the company's LMS and spearheaded all design elements.
  - Worked with **PHP**, **SQL**, **Azure Web Hosting,** and **Azure Media Services**.
  - Implemented **A/B testing** to determine the reasoning behind customers' training services choices and implemented solutions that **improved underperforming services by 10%**.
  - Studied trends and user feedback; extrapolated data with **Python** to understand customer needs and present key insights to management.

- **Machine Learning Engineer Intern** 06/2019 – 05/2020
  at the **Technology for People Initiative Lab** at **LUMS**

  Project Lead, Analysis of Gender Bias in Pakistan's Print Media
  - Trained **word embeddings** on 0.2 million news articles and used vector-similarity measures to demonstrate how the Pakistani media perpetuates gender stereotypes.
  - Worked using **Google Colab**, **Pandas**, **NumPy**, **Scikit-learn**, and **Gensim** Python libraries, and **Vue.js** frontend.

  Team Member, Analysis of Machine-Text Generation and Discrimination Models
  Collaborated with professors from the University of Iowa to study neural language models and their potential to propagate misinformation.
  - Conducted a systematic analysis of reviews posted on federal agency websites and e-commerce marketplaces to examine the possibility of reputation fraud using language models.
  - Evaluated discriminatory models on (1) text samples with various stylometric features and (2) text samples generated by differently configured models.

- **Selected Course Projects**

  Studying Parent Nonverbal Cues in Children's Engagement During Dialogic Reading 09/2021 – 12/2021
  *Under the supervision of **Professor Rosalind Picard***
  - Conducted a quantitative and qualitative analysis of the DAMI-P2C (Dyadic Affect in Multimodal Interaction - Parent to Child) dataset to better inform a child's engagement during reading tasks.
  - Designed a model that achieves 72.4% accuracy with a simple linear model and standardization of the parent's body pose features.

  Project Lead, 3D-Sound Shooting Game for the Visually Impaired 09/2018 – 12/2018
  Worked in a group of 5 to design a mobile game for visually impaired people in a **participatory design process**.
  - Worked with 35 visually impaired participants in user research, design, and evaluation.
  - Conducted interviews, contextual inquiry, and design workshops.
  - Worked on low-fidelity prototyping, user flows, **Unity** development, and user testing.

- **Undergraduate Teaching Assistant** 09/2018 – 12/2019
  - **Advanced Programming Course**
    Designed a programming exam for 156 students on **asynchronous programming** in **Vue.js**. Supported students' learning of **functional programming** in **Haskell** and **concurrent programming** in **Golang**.
  - **Introduction to Programming Course**
    Supervised weekly labs for 100 students on programming exercises in **C++**.
  - **Human-Computer Interaction Course**
    Supervised classroom activities and conducted weekly progress meetings with student groups.

Awards and Publications

- "Augmenting Social Science Research with Multimodal Data Collection," **MDPI Sensors**, 2022.
- "Multimodal Data Collection Made Easy: The EZ-MMLA Toolkit," **Learning Analytics and Knowledge**, 2021.
- Winner: Futures Forum on Learning: Tools Competition by **Schmidt Futures**, 2021.
  Received **$35,000** out of **900 competing teams** to develop technological tools to support data science literacy.
- Speaker: "Using Multimodal Data to Prepare the Next Generation of Data Scientists", **Computer-Supported Collaborative Learning** in Times of Crisis Webinar Series, 2021.

Extracurriculars

- **Director of Resource Centre**, Harvard EdTech Association 09/2021 – Present
- **Design Lead**, Pakistani Women in Computing Organization, New England and Lahore Chapter. 06/2020 – Present
- **Creative Director**, PsiFi, the biggest Science Olympiad in Pakistan. 12/2020