

# Raja Hasnain Anwar

Amherst, Massachusetts, USA.

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## Technical Skills

**Programming** Python, C, C++, Java, JavaScript, PHP, Oracle, MySQL, MongoDB.  
**Frameworks** jQuery, Bootstrap, Flask, Django, Selenium, Hibernate, Spring, Tornado, SQLAlchemy.  
**Tools** Android Studio, Visual Studio, Git, Travis CI, Docker, Matlab, Tableau, Wireshark.  
**DS / ML / AI** OpenCV, Scikit-learn, Pandas, Numpy, NLTK, Keras, Tensorflow, PyTorch.

## Education

### University of Massachusetts Amherst

Amherst, MA, USA

Ph.D. in Electrical and Computer Engineering

Sep 2023 – Dec 2025

- **Teaching:** ENG 690STA: Fundamentals of Cloud Computing

### The University of Arizona

Tucson, AZ, USA

Ph.D. in Management Information Systems

Jan 2021 – May 2023

- **Teaching:** MIS 566: Penetration Testing, Ethical Hacking, and Social Engineering

### National University of Sciences and Technology (NUST)

Islamabad, Pakistan

B.S. in Computer Science

Sep 2016 – Jun 2020

- **Capstone Project:** Multimodal Face2Voice: A novel learning paradigm called deep shared latent space learning with a penalization that eliminates branching in multimodal training. The model's capability is demonstrated by mapping between a person's facial features and voice.

## Experience

### University of Massachusetts Amherst

Amherst, MA, USA

Graduate Research Assistant

Sep 2023 – Present

- Led a comprehensive study to test in-flight WiFi restriction policy and bypass paywalls across major ISPs and airlines (under review at USENIX).

### Kaiser Permanente

Pleasanton, CA, USA (Remote)

Data Science Intern

Jun 2023 – Aug 2023

- Revamped a classification pipeline to accurately identify at-risk patient groups, resulting in a remarkable 20% increase in accuracy.
- Employed spline-based feature transformation models to handle nonlinear features like patient age groups effectively.
- Integrated SHAP value generation for in-depth analysis of the production model's behavior against sensitive features, i.e., gender, age, & race.

### The University of Arizona

Tucson, AZ, USA

Graduate Research Associate

Jan 2021 – May 2023

- Led systematic testing of financial systems with a focus on credit card transaction policy compliance (forthcoming USENIX'24).
- Developed novel side-channel attacks on typing behavior, achieving 80% accuracy in user profiling and text classification (AMCIS'23).

### TUCL-NUST R&D Center

Islamabad, Pakistan

Research Assistant

Apr 2017 – Jun 2020

- Gathered 120 hours of video dataset for fish detection and tracking in the wild, used for population estimation.
- Automated image superimposition to generate 20 images per document extraction sample by augmenting foreground and background settings.
- Unified text mining and personally identifiable information (PII) detection pipelines to mask private information from public judicial archives with 70% accuracy.

### Hochschule RheinMain

Wiesbaden, Germany

Research Assistant

Jun 2019 – Aug 2019

- Generated a dataset with over 1,000,000 entity pair data points from raw Wikipedia texts for entity relation extraction.
- Architected an LLM pre-training pipeline that leverages context similarity as an entity relation estimator to automate 100% of labeling.

### VisionX Technologies

Islamabad, Pakistan

Machine Learning Engineer

Jun 2018 – Jun 2019

- Engineered an OCR and heuristical information extraction pipeline to digitalize hand-written tabular property records with 85% accuracy.
- Developed a web tool to visualize and correct extracted data improving pipeline efficiency by 50%.

### Al Jazeera

Remote

Machine Learning Engineer

Aug 2018 – Dec 2019

- Integrated a real-time audio transcription service for Arabic and English in live streams with only a 5-second delay.
- Developed a large-scale sentiment analysis system to monitor real-time trends from news and social media in English and Arabic.
- Automated multimedia search with an audio matching tool to retrieve audio/video samples using a 10-second audio query.

## Honor and Awards

- 2021 **Nunamaker-Chen Scholarship**, Received from MIS department at The University of Arizona.
- 2020 **Summer@EPFL**, Selected for the summer internship programme (2% acceptance rate).
- 2020 **Huawei UG Star Researcher**, Received for best undergraduate research project.
- 2019 **DAAD Research Fellow**, Selected for German Academic Exchange Service (DAAD) research fellowship.