ZORAIZ QURESHI

zoraizq@virginia.edu | Charlottesville, VA | zoraiz-qureshi | ZoraizQ | zoraizq.github.io

EDUCATION

University of Virginia
MS Computer Science (2021 – Present)

Lahore University of Management Sciences
BS Computer Science (2017 – 2021) – CGPA 3.78

Awards & Honors:

- Dean's Honor List 2017-2021
- Winning Team - IEEE LUMS CodinGuru 2020 (Facebook Developer Circles) & Wallifornia MusicTech Hackathon 2020 (Hackathons International)

Extracurriculars:

- Event Head Tech Wars & Assistant Director Information Technology - Society for the Promotion and Development of Sciences (SPADES)
- General Secretary - Arts Society
- Director Design & Merchandise - Lahore University of Management Sciences Model United Nations (LUMUN)

EXPERIENCE

Research Assistant
Dr. Bijoy Kundu (PhD Associate Professor of Radiology and Medical Imaging)
Aug 2021 – Present

- Automation of the blood input function derivation pipeline using dynamic FDG-based PET images (3D sequences) using machine learning and image analysis.
- Concentrating on deep learning for VOI segmentation and generation of time-series data.

Teaching Assistant - CS 315 Theory of Automata
Lahore University of Management Sciences
Jan 2021 – May 2021, Jan 2020 – May 2020

Teaching Assistant - CS 452 Computer Graphics
Lahore University of Management Sciences
Sep 2020 – Dec 2020

Application Developer
Learn Interact Think (Plan9)
May 2019 – Aug 2019

- Developed an AR educational mobile app for iOS and Android developed using Unity3D, focusing on interactive 3D projections from user-customized bilingual storybooks based on exploring the history and culture of Pakistan.

SKILLS

Languages: Python, C++, C#, JavaScript, Java, SQL

Tools and Frameworks: Git, Unix, Matlab, Keras, PyTorch, FastAi, Kivy, PyQt, Unity3D, EasyAR, React, Redux, Google Cloud Platform, Flutter, Django, Flask, Nginx, Node.js, Firebase, MongoDB, CSS, Bootstrap, Stata, Figma, Selenium Webdriver, WebRTC, Socket.io

RESEARCH & PROJECTS

GA-ANFIS and CRNN for Mental Attention State Classification using Passive BCI-based EEG data
Feb 2021 – May 2021

Supervisors: Mian Muhammad Awais (PhD Imperial College)

- Detection and classification of human mental attention state into focused, unfocused and drowsy categories using electroencephalography (EEG) based BCI intrinsic activity data self-generated by specified individuals under live simulation.
- Our approach designs and tests various classifiers – a hybrid neuro-genetic fuzzy system and both shallow convolutional and convolutional recurrent neural networks, working with multiple pre-processing techniques and sample trial lengths as short as 6 seconds for responsive predictions.

Neuron reconstruction using 3D semi-automated annotation and deep learning
Sep 2020 – May 2021

Supervisors: Dr. Fareed Zaffar (PhD Duke), Saeed Boorboor (Stony Brook)

- Developed a semi-automated annotation toolbox with 3D cross-sectional painting and interactive visualization to generate segmentation masks from volumes of neuron morphologies obtained from wide-field microscopy.
- It was designed to facilitate the construction of comprehensive maps of neuronal structures of brain segments which has applications such as the study of cholinergic neurons, a class of neurons that are severely affected in Alzheimer's disease.
- Further integrated a custom UNET based 2D convolutional neural network using Keras with both local and server-based prediction modes within the toolbox to enable live semantic segmentation.

ZORAIZ QURESHI

zoraizq@virginia.edu | Charlottesville, VA | zoraiz-qureshi | ZoraizQ | zoraizq.github.io

Fake news amid COVID-19: Investigating people's susceptibility and perception

Jun 2020 – March 2021

Supervisors: Dr. Fareed Zaffar, Dr. Zartash Uzmi (PhD Stanford), Priya Fatima (Oxford)

- Analyzed people's susceptibilities to misinformation and their perceptions in the wake of the COVID-19 outbreak with a multidisciplinary team in collaboration with the University of Oxford, working under the Technology for People Initiative Lab, Lahore University of Management Sciences.
- A mixed-method approach was deployed after data collection through surveys and interviews, and both quantitative and qualitative analysis.

AgriScan

Mar 2020

- FastAI Vision based web chat application to allow farmers to predict the presence of the Leaf Curl Virus (TYLCV) in their crops by conveniently sending the snapshot of a sample leaf, while also marking all live diseased locations.
- Winning Team - IEEE LUMS CodinGuru Hackathon 2020 hosted by Facebook Developer Circles Lahore.

Madadgaar

Jun 2020 – Aug 2020

Supervisors: Dr. Suleman Shahid (PhD Tilburg)

- Designed a complete blood donation system for donors to sign up and get notified about submitted blood requests from anonymous users and organizations alike.
- Integrated email, SMS and app notifications while maintaining complete donor privacy.
- LUMS Students as Co-Researchers (ScR) Program 2020 Grant (50,000 PKR) received from the Office of Research and LUMS Learning Institute.

Safarnama

Sep 2020 – Dec 2020

- Educational AR-based virtual touring application to showcase the heritage and culture of Pakistan, using 3D exhibits, gamification and periodic quizzes to improve spatial, visual and story-based learning in children.
- Based on user research conducted through focus group discussions, interviews, surveys and both low and high-fidelity prototyping conducted for the course Human Computer Interaction.

PianoTunesAR

Jul 2020

- AR-based mobile application developed to calibrate and project digitally-recorded piano videos from YouTube over a physical piano to learn by direct mapping, increased spatial recognition and hand-eye coordination.
- 1st Place (1,000€) - Wallifornia MusicTech Hackathon 2020 conducted by Hackathons International.

Save Our Soul

Jul 2020

- Save Our Soul is an anonymous video and chat web application developed for people seeking mental help can anonymously connect with others seeking help or willing to provide help, along with advanced reporting.
- Submitted to the COVID-19 Global Hackathon 2.0: Social & Mental Health and Quarantine Hacks 2020.