

# Muhammad Arsalan Khan

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DOB: 12-07-1996

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## EDUCATION:

**LAHORE UNIVERSITY OF MANAGEMENT SCIENCES**  
Bachelors in Computer Science

Major GPA: 3.48 out of 4.0  
CGPA: 3.15 out of 4.0

## EXPERIENCE:

**SOFTWARE ENGINEER** - CAREAXIOM (CAREMERGE)

1 yr | **MAR 2019 - CURRENT**

Started as a full-stack web developer where I developed and maintained different modules and worked on performance enhancements to scale the web-application. Later, I transitioned to the company's AI initiatives and worked on developing a voice-based solution for the organization. Published Alexa's first invocation-free skill, Caremerge Voice, for senior living. Worked on AWS pipelines, establishing gateways, lambdas, CloudWatch, SQS, and DynamoDB.

**TEACHING ASSISTANT** - CS 452: Computer Graphics

4 mo | **SEP 2018 - DEC 2018**

Gave tutorials and helped students understand course questions and assignments. Delivered lectures on Unity3D and its applications.

**RESEARCH ASSISTANT** - Computer Graphics & Vision Lab, LUMS

3 mo | **JUN 2018 - AUG 2018**

Detected bonded labor and smog affected areas using satellite imagery.

(Ref: Dr. Murtaza Taj, Computer Science, LUMS)

**ENGINEERING INTERN** - CAREAXIOM (CAREMERGE)

2 mo | **JUL 2018 - AUG 2018**

Worked as an SQA Engineer. Wrote automated test cases using Selenium and Protractor, and maintained Jenkins processes.

**ANDROID DEVELOPER** - AGORA: Weather Application

4 mo | **JAN 2018 - APR 2018**

Created a weather-based mobile application to display heatmaps for different weather parameters like humidity, temperature, and air quality Index to visualize the effects of pollution in different parts of the city. (Ref: Dr. Jahangir Ikram)

**SUMMER RESEARCH INTERN** - Computer Vision Lab, LUMS

4 mo | **MAY 2017 - AUG 2017**

Worked on a USAID funded project, 'Preservation of Heritage Sites of Pakistan', in collaboration with Arbisoft. Researched on preserving landmarks of Pakistan by creating architecturally accurate models from point clouds and developing virtual tours in Unity3D.

(Ref: Dr. Murtaza Taj, Computer Science, LUMS)

## PROJECTS:

**RESILIENT AND SECURE CLOUDS** - Capstone Project

(Ref: Dr. Muhammad Fareed Zaffar, Computer Science, LUMS)

Detected the signature of Hardware-Based Attacks, specifically the Row Hammer Exploit, using Hardware Performance Counters (HPCs). Created an intelligent, real-time malware detection tool called "cloudGuard", that primarily focused on detecting the signature of Hardware-Based, Side-Channel Attacks and safeguard cross-VM and cloud infrastructure. Employed hardware-assisted profiling to create traces and then used random forest classifier to distinguish the signatures for various attacks.

**KAHANIYAN** - Research and Development Project

Developed a Mobile-Assisted Second Language Learning Application (MASLL) using Unity3D and a visual scripting tool, Fungus, to explore the use of gamification, on non-native primary school children and to assist language learning within the context of interactive storytelling.

**VIRTUAL TOUR OF BADSHAHI MOSQUE AND DERAWAR FORT** - Research and Development Project

Created virtual tours of Badshahi Masjid and Derawar Fort using Unity3D.

**RUPAIYA** - Development Project

Developed an Augmented Reality application using Unity3D that detected historical landmarks behind Pakistani currency notes and placed a 3D model of that site over it.

**PREDICTING MOVIE GENRES USING ITS SYNOPSIS** - Research and Development Project

Trained a k-Nearest Neighbour model on a bag-of-words representation of the synopsis text to predict the genre. This representation was later changed into a term frequency-inverse document frequency (tf-idf) vector for encoding the relative frequencies of words over the entire dataset.

**BIASES IN FACEBOOK'S REPORTING SYSTEM** - Research Project

Analyzed Facebook's reporting system and community guidelines. Found statistically significant biases where Facebook failed to remove posts that went against its guidelines.

**INTER-UNIVERSITY COMPARISON OF NETWORK SECURITY BEHAVIORS** - Research Project

Studied behavioral differences exhibited by students across Pakistan when it comes to web security by applying the Security Behavior Intentions Scale (SeBIS) to a population sample of around 300 students.

**PIANO TILES: Using Wii Remote Input** - Development Project

Replicated an iOS application in MATLAB and incorporated gesture detection using Wii Remote.

**PUBLICATION:**

**KAHANIYAN - DESIGNING FOR ACQUISITION OF URDU AS A SECOND LANGUAGE** - INTERACT 2019

Co-authored a paper describing the design of our mobile-assisted second language learning application, Kahaniyan. Demonstrated how psychological and linguistic aspects coupled with contextual task analysis can be used to create a second language learning tool.

**EXTRA CURRICULAR:**

**DIRECTOR CREATIVITY & PUBLICITY** - FINTRA, LUMS Finance Society

**VOLUNTEER** - CHADAR, NGO Pakistan