

M. Shahzaib Waseem

Curriculum Vitae

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Education

2016–2020 **National University of Sciences and Technology (NUST), SEECS**, Pakistan
Bachelors in *Computer Science*
CGPA: 3.42

Experience

- 2019 **Research Intern at Furnwish**, CAIRO, Egypt
Furnwish is a tech company, based in Egypt, which uses AI and AR for making tools the Furniture Industry.
- 2 months of internship
 - Worked on a Computer Vision Research Project using PyTorch. The Project was to convert 2-D image(s) to 3-D volumes. This idea behind the project was to enable furniture sellers to take picture(s) of pieces of furniture and converting them into 3-D models which the end user can see how they look like in their living room. The generated 3-D models are viewed in an iOS mobile app using Apple ARKit.
- 2018 **Research Intern at TUKL Research Center**, NUST, ISLAMABAD, Pakistan
- 2 months of internship
 - Worked there on a Chatbot Project. This Chatbot was for a company, which deals with real estate.

Skills & Abilities

- Programming Languages** Proficient in C/C++, JAVA, Python, JavaScript, SQL, PHP. I have used all of these languages in my Projects, which are mentioned below.
- Machine Learning** I have finished some Machine Learning and DeepLearning Courses. I am comfortable with Tensorflow, Keras and i have also worked on PyTorch for a project for Furnwish, Now I am currently working on a project which uses Tensorflow 2.0 for Computer Vision related application. I have also worked with NumPy, OpenCV and PIL.
- Database** I am comfortable with Databases. I have taken a course on this subject at my university (NUST). I have used MySQL in a Project (**EduMeet (Github Link)**) and SQLite in another one (**School Ranking System (Github Link)**).
- Operating Systems** I work on both Windows and Ubuntu. I have basic knowledge on how an Operating System works. I took a course on this subject at my University (NUST), in which i've dealt with PThreads and PintOS. (**Github Link**).
- Hardware** I have hands-on Experience with Arduino & Nodemcu (ESP8266), I took a Crash Course on this, and applied the Knowledge in a project (**Garduino (Github Link)**).
- Mobile Development** I have created some very basic Android Apps on Android Studio in Kotlin and JAVA.
- Others** I have taken Microsoft Office Specialization Tests, See Certificates: **Word Powerpoint Excel**

Projects

2019 **TCP-like Communication using Raspberry Pi**, *Github Link*

- Programming Language used: Python
- This was an implementation for Bottom Up Data Tree
- Communicated between a Raspberry Pi 3 and a Laptop running Ubuntu. We used a layer over the UDP networking protocol to convert it to a TCP-like protocol.
- This was a demonstration of how a node sends data to its parent node in a bottom up data tree and how to use buffers of limited size. The Parent Node tells its child node when a Overflow condition occurs and asks it to slow down the data rate and similarly for underflow the parent node asks its child node to slow down its data rate. The 'Processing' of data and 'Generation' of data was demonstrated using threads and a lock was implemented so that only one thread can update the contents of the buffer.

Ship Detector using aerial images, *Github Link*

- Programming Language used: Python
- Used Keras (Tensorflow 1) to detect ships from aerial images.
- Compared performances of UNET and VGG models. Performed basic Image Processing techniques like Binarization, Histogram Equalization, Unsharpening and Smoothing (using different kernels and using median Smoothing) and compared the results to the models without the image processing part.

HTTP Downloader, *Github Link*

- Programming Language used: Python
- This downloader can operate on multiple connections, which results in faster downloading
- This downloader can deal with interrupted downloads, by saving the data, in hidden files, as it is fetched and combining all the files in the end

CommunistBadger, *Github Link*, Group Project

- Programming Language used: Python
- CommunistBadger is a stock analysis tool built for multiple data and market analysis and recommendation
- This tool uses multiple data sources i.e., Stock Prices of Different Companies, News about these companies, Tweets regarding these Companies
- Sentiment Analysis is done on News and the Tweets
- Using the Stock Prices and the Sentiments the tool figures out if the stock of the company will go up or down

2018 **EduMeet**, *Github Link*

- Programming Language used: JavaScript, PHP
- This is a Web Tool which keeps the user up to date with upcoming Seminars in the country, Job/Internship Positions open, Universities Applications Deadlines, Tech News etc.
- There is a Helpline Chatting System which can be used to help user
- The user can subscribe to the website if the user wants to be notified about certain deadline via email (PHP Mailer)

Search Engine, *Github Link*

- Programming Language used: Python
- This used to forward index the entries in an Wikipedia Dump File (.xml)
- The entries were serialized using Pickle
- Then the serialized files were searched for a string provided by the user

Garduino, *Github Link*

- Microcontroller: Arduino
- Programming Language used: C/C++
- This is otherwise called Automated Gardening System
- This had the following Modules: Real Time Clock Module (RTC), Soil Moisture Sensor, Light Dependent Resistor (LDR)

School Ranking System, *Github Link*

- Programming Language used: Python, SQLite
- Jinja was used for Templating, Flask(Python Microframework) was used as the Server
- Bootstrap was used for CSS Styling, JavaScript was used for drawing Bar Diagrams
- There are different views for different types of users (admin, partial admins, regular users)
- Other Libraries used: SQL Alchemy, Flask's Login Manager, Flask WT Forms and Validators (secure Login & Signup Pages), Werkzeug Security (sha256 encryption)

2017 **Library Management System**

- Programming Language used: JAVA
- Database used: JDBC
- JAVA Graphical User Interface (GUI) using Swing Library

PPM Editor

- Programming Language used: C
- The goal for this project was to implement a Photo Editor tool, for .ppm files, with File Handling, Dynamic Programming and Pointers.

MOOCs

- Introduction to Computer Science, CS50, HARVARD
- Practical Programming in C, 6.087, MIT
- Algorithms, Part 1, PRINCETON
- Machine Learning, STANFORD, **See Certificate**
- DeepLearning.ai Specialization, STANFORD, See Certificates: **1 2 3 4**
- Convolutional Neural Networks, CS231n, STANFORD
- Mathematics for Machine Learning, Multivariate Calculus, IMPERIAL COLLEGE
- Command Line, CODECADEMY
- Microcontroller one day Crash Course