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M. Shahzaib Waseem

Education

2016–2020 **National University of Sciences and Technology (NUST)**, *SEECS*, Pakistan
- World University Ranking 2020: 355 (QS Ranking)
- Top 50 under 50 Ranking 2020: 41 (QS Ranking)

Bachelors of Science, *Computer Science*, CGPA: 3.37/4.00
Final Year Thesis: "Generation and Analysis of Art using Machine Learning"
Under the supervision of Dr. Syed Taha Ali, Assistant Professor, NUST.

Experience

2020 **Research Intern at Smart Lab/Cognet@SEECS**, *NUST*, Islamabad, Pakistan
Worked on Generative Adversarial Networks (GANs) for my Final Year Thesis in this lab. The Project is called "Generation and Analysis of Art using Machine Learning".

July - Sep 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. Worked on a computer vision research project with the goal of converting 2-D image(s) to 3-D models.

June - Sep 2018 **Research Intern at TUKL Research Center**, *NUST*, Islamabad, Pakistan
Worked there on a Chatbot Project. This Chatbot was for a company, which deals with real estate.

Projects

2020 **Generation of Art using Machine Learning**, *GitHub Link*, Demo Video, Bachelors' Thesis
Novel art generation, with focus on religious art, using different versions of Generative Adversarial Networks (GANs) implemented with various GAN-optimization techniques. Various novel techniques such as "glitching" and "watermarking" were used to make it easier for the low dimensional GAN to pick the trends out of the low resolution images.
Tools used: Python3, Tensorflow 2.0, Keras, OpenCV, PIL/Pillow, Beautiful Soup, other Python Libraries.

2019 **3-D model generation from 2-D image(s)**, Furnwish
A Computer Vision Research Project using PyTorch. 3-D models of furniture pieces were generated out of 2-D image(s) of the furniture piece, with the main end goal of helping store users to boost their online presence as the end users, customers, would be able to see exactly how the piece of furniture would look in their living space in an iOS app equipped with AR-Kit.
Tools used: Python3, PyTorch, OpenCV, other Python Libraries.

Ship Detector using Aerial images, *GitHub Link*
Ship detection from a dataset consisting of aerial images. Image processing techniques like Binarization, Histogram Equalization, Unsharping and Smoothing (using different kernels and median Smoothing) were employed which yielded better results and the processed images were tested on UNET and VGG models.
Tools used: Python3, Tensorflow1.0, Keras1.0, OpenCV, other Python Libraries.

CommBadger, *GitHub Link*, Group Project
Stocks predictions using Sentiment analysis with data streams coming from Twitter (using PyTweet) Stock prices and News articles. This tool recommends users what stocks are hot and what should the user buy.
Tools used: Python3, Tensorflow1.0, Keras1.0, Pickle, MongoDB, Tkinter, Yahoo APIs, PyTweet, others.

2018 **Wikipedia Search Engine**, *GitHub Link*
Forward indexes words from a wikipedia .xml dump file and serializes the entries after pre-processing the data and then in the end allows the user to search the dump files in real time.
Tools used: Python3, Pickle, Socket, ElementTree XML API, other Python Libraries.

Skills & Abilities

Programming Languages
- Python, C/C++, Java, JavaScript, SQL, PHP and Cuda. **GitHub** .
- Basic knowledge of Matlab and Octave for **Numerical Analysis and Modeling** .

Machine Learning
- Worked on Deep Learning Frameworks like Tensorflow, Keras and PyTorch.
- I have also worked with NumPy, OpenCV and PIL/Pillow.

Database
- Worked on MySQL (**EduMeet**), SQLite (**School Ranking System**), MongoDB (**CommBadger**) and MS Access.

Operating Systems
- Comfortable working in Windows and Linux.
- Know basic working of **PThreads and PintOS** .

Hardware
- I have hands-on Experience with Arduino and Nodemcu ESP8266 (**Garduino**).

Mobile Development
- I have created some very basic Android Apps on Android Studio in Kotlin and Java.
- Also worked with Unity on a basic android game.

Others
- Microsoft Office Specialist. See Certificates: **Word** , **Powerpoint** , **Excel** .
- Basic working Experience with LaTeX.
- Know how to use GitHub, Bitbucket with Gitbash.

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, Certifications: **Neural Networks and Deep Learning** , **Improving Deep Neural Networks** , **Structuring Machine Learning Projects** , **Convolutional Neural Networks**
- Convolutional Neural Networks, `CS231n`, Stanford
- Mathematics for Machine Learning, `Multivariate Calculus`, Imperial College London
- Command Line, Codecademy
- Microcontroller one day Crash Course, Nust

Achievements

- Accepted for an internship at Furnwish, Cairo, Egypt
- NUST Merit Based Scholarship
- Awarded Dean's List

References

Assistant Professor, *NUST*, Islamabad
Dr. Syed Taha Ali
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Chief Technology Officer and Co-founder, *Furnwish*, Cairo
Ahmad Amin
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