

Syed Bilal Haider Bukhari

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Education

FAST - National University of Computer and Emerging Sciences

Bachelors of Science in Computer Science

CGPA: 3.1

Aug 2019 - May 2023

Skills

Frameworks	FastAPI, Django, Next.js, React
Programming	Python, JavaScript, Typescript, R, C/C++, Java, HTML/CSS/Tailwind
Databases	SQL (T-SQL, PL/SQL), PostgreSQL, Oracle, MongoDB, sqlalchemy, Prisma
Testing	Junit, Pytest
Miscellaneous	Linux, Shell (Bash), ORMs, Microsoft Office, Git.
Soft Skills	Time Management, Problem-solving, Documentation, Effective Communication

Work Experience

Technove

Melbourne, Australia

Associate Software Engineer

Nov 2022 - Oct 2023

- Collaborated with a team of five professionals to develop robust and scalable API systems, utilizing Python backend development.
- Successfully handled database operations using sqlalchemy and PostgreSQL, ensuring efficient data management, retrieval, and seamless integration with the API architecture.
- Played a pivotal role in the development of a startup project, a global freelancer platform, designed to facilitate direct interactions between freelancers and clients, eliminating the need for intermediaries.
- Successfully handled the complete Authentication using OAuth2.0 with seamless integration and smooth flow of tokens.
- Technical Skills:** Python, FastAPI, sqlalchemy, PostgreSQL, Git, GitHub.
- Soft Skills:** Teamwork, Time Management, Communication, Presentation skills.

Projects

A framework for Mutation Testing of Deep Learning Models

(GitHub link)

Python, TensorFlow, PostgreSQL, FastAPI, Pytest

- I worked with a team of 5 and was in charge of back-end development and managing Machine Learning processes to conduct Mutation Testing on Neural Networks, specifically CNN's.
- My work involved utilizing TensorFlow to introduce atomic faults into DL systems using the lower-level Keras API.
- I analyzed the data, performed statistical tests and presented findings such as effect size using Cohen's d, p value, Accuracy, Precision, F1 score, AUC, Sensitivity, etc.
- I developed a versatile API using FAST-API and conducted comprehensive unit testing of the back-end using pytest.

Blood Stain Detection from Hyperspectral Images using 3D CNN

(GitHub link)

Python, Tensorflow, 3D CNN

- Conducted Principal Component Analysis (PCA) and synthetic minority oversampling technique (SMOTE) as pre-processing steps for dimension reduction and data balancing.
- Developed a 3D convolutional neural network (CNN) for the purpose of Blood Stain Detection, resulting in a commendable accuracy of 99%.

Semantic Segmentation for clouds masking from Hyperspectral imaging

(GitHub link)

Python, TensorFlow, ONNX

- I managed to pre-process Hyperspectral Imaging data and train Machine Learning Model of U-NET architecture using K-folds cross validation for Semantic Segmentation of clouds using TensorFlow, The model was then converted into ONNX format for easy deployment.

Data Analysis on Uber Data for Newyork 2014

(GitHub link)

R Language, ggplot2

- Performed Exploratory Data Analysis on Uber Data for Newyork, moreover generated graphical representation for highest sales with respect to hours, days and months using R programming Language. The analysis contain graphs, charts and heatmaps

Honors & Awards

- 2019 **Dean List of Honor**, First Semester
- 2019 **Runner-up**, Programming Battle by FCAPS
- 2022 **Teaching Assistant**, Programming Fundamentals
- 2023 **Dean List of Honor**, Eighth Semester
- 2023 **Qualified in top 100 Fastest Models**, DeepRacer, AWS
- 2023 **Awarded Scholarship for Machine Learning Fundamentals NanoDegree**, Amazon Web Services

Certifications

AWS Educate Machine Learning - DeepRacer

May, 2023

Credly Certificate link

Publications

UNDER REVIEW

A survey on Mutation Testing in Deep Neural Networks

Dr. Usman Ghous, Dr. Affan Rauf, Syed Bilal, Saad Abdullah, Mahnoor Abid

Software Testing, Verification and Reliability (STVR) (2023). 2023