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Portfolio:
https://fazanafzal.github.io/portfolio/

Faizan Afzal

Data Scientist / Machine Learning Engineer

Github: FazanAfzal
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A Data Scientist with a demonstrated history of delivering impactful solutions through innovative data-driven approaches. Proficient in Python, Machine Learning, Deep Learning, and Computer Vision, with expertise in developing scalable AI applications. Skilled in data visualization using tools like Grafana and Power BI and experienced in managing database infrastructure with SQL. Well-versed in deploying models to edge devices and implementing automation systems. Motivated by challenges and committed to leveraging advanced analytics to drive organizational growth and success.

SKILLS

Tools and Languages	BI, Python, Apache Spark, Airflow, AWS Glue, QGIS, SQL, ArcGIS
Quantitative Research	Machine Learning, Deep Learning, Computer Vision, NLP
Communication	Urdu, English, Arabic

WORK EXPERIENCE

Machine Learning Engineer **Dec 23 - Present**
iENGINEERING Corporation (Pvt.) *Islamabad, Pakistan*

- Developing and Managing Data Pipelines: Design, implement, and maintain complex data pipelines using Apache Airflow to ensure efficient and reliable data processing.
- Monitor data pipeline performance, identifying and resolving bottlenecks.
- Developed a custom log snowflake operator in Airflow for logging, debugging and auditing of Airflow jobs.
- Created interdependent dags in Airflow using triggerdagrun operator and task sensors in airflow.
- Designed, developed, and implemented ESRI ArcGIS geodatabase.
- Create Grafana Dashboard using Postgre SQL database.
- Received first position as Employee of the Quarter
- Deploying lightweight models to Edge Devices
- Use AWS Lambda trigger to get files names from RDB.
- Use AWS Glue Crawler periodically scans the RDB for new entries.
- Convert Airflow DAGs into Apache Spark DAG

Associate Machine Learning Engineer **Sep 22 - Dec 23**

- Building AI applications with robust architecture which are scalable as per project requirements.
- Implementing deep learning algorithms.
- Train & test deep learning models including image classification, object detection, image segmentation and scene detection using Pytorch, TensorFlow, and OpenCV.
- Design, develop and maintain scalable code based on Computer Vision.
- Write Python scripts as per project requirements.
- Manage and build a motivated data annotation team.
- Created and managed all the database infrastructure
- Designed and developed data download portal for shapefiles, KML
- Created data integration component to import data from non-image formats to GIS imaging application without loss of data or image quality during transit and conversion.

Business Intelligence Analyst **Apr 22 - Sep 22**
Kohinoor Textile Mills Limited *Islamabad, Pakistan*

- Utilize company resources to curate data
- Analyze data for market trends and patterns
- Generate weekly and monthly reports with market trends past and present
- Design new data collection models to better collect information
- Coordinate with IT department to implement new models
- Perform data profiling to identify anomalies
- Develop protocol on how to best filter and variance
- Ensure subordinate staff is well informed and on-task
- Develop processes and tools to monitor and analyze model performance and data accuracy
- Implementing Automation system regarding item code generation.

Front End Developer **Mar 20 - Sep 20**

4NDS NETWORKS *Rawalpindi, Pakistan*

- Be responsible for maintaining, expanding, and scaling our site
- Writing well designed, testable, efficient code by using best software development practices.
- Integrating data from various back-end services and databases

PROJECTS

Grafana Dashboard

By leveraging CVAT for annotation and Grafana for analytics, I've streamlined our workflow and gained valuable insights. Our Grafana dashboard provides a comprehensive overview, allowing us to monitor resource utilization, track annotation progress, and analyze performance metrics in real-time. This integration enhances our ability to make data-driven decisions, optimize annotation processes, and ensure the efficiency of our projects. With a centralized platform for both annotation and analytics, we're empowered to drive continual improvement and achieve our objectives with precision.

LINK: https://fazanafzal.github.io/portfolio/

Crack Detection

Our project leverages cutting-edge deep learning models alongside advanced OpenCV techniques to detect cracks and various forms of road damage. Using this technology, we accurately identify and classify these issues, representing them visually on a map. The detection results can be displayed as masks, polygons outlining the damage, or bounding boxes pinpointing the affected areas. This approach not only facilitates efficient monitoring of road conditions but also aids in prioritizing maintenance efforts for safer and well-maintained road networks.

LINK: https://fazanafzal.github.io/portfolio/

Anonymizer

Anonymization of faces and license plates has become a global requirement. With regulations from the European GDPR, Californian CCPA, Chinese CSL and Japanese APPI, autonomous vehicles need to be able to collect street scene data globally with all the critical personal information automatically removed. UAI Anonymizer, our AI-powered anonymization tool, ensures your data is compliant by blurring faces and number plates in a fully automated fashion.

LINK: https://fazanafzal.github.io/portfolio/

Retro-reflectivity

Traffic signs are essential for the safe and efficient movement of vehicles through the transportation network. Poor sign visibility can lead to accidents. One of the key properties used to measure the visibility of a traffic sign is retro-reflection, which indicates how much light a traffic sign reflects back to the driver. The retro-reflection of the traffic sign degrades over time until it reaches a point where the traffic sign has to be changed or repaired. Predicting Traffic Sign Retro-Reflectivity Degradation Using Computer Vision algorithm.

LINK: https://fazanafzal.github.io/portfolio/

Potholes Detection

Successfully trained a YOLOv8 based machine learning model for pothole detection on road images and videos, demonstrating expertise in computer vision and deep learning. Utilized the model to improve road safety and infrastructure maintenance

LINK: https://fazanafzal.github.io/portfolio/

Develop Lane Marking Model

Developed and trained a Mask R-CNN based instance segmentation model using Mask2Former for detecting different types of lane markings in road images and videos. Demonstrated proficiency in deep learning, computer vision, and instance segmentation techniques for improving road safety and autonomous vehicle navigation.

LINK: https://fazanafzal.github.io/portfolio/

Analysis Dashboard

Experience as a Business Intelligence Analyst utilizing Power BI to perform in-depth analysis and visualizations on company data. Successfully transformed raw data into actionable insights, improving decision making and driving business growth. Demonstrated expertise in data analysis and visualization, delivering effective reporting solutions to stakeholders.

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EDUCATION

Master of Science in Data Science, *Bahria University, Islamabad* MAR 2022

Bachelor of Science of Computer Science, *PMAS Arid Agriculture, Rawalpindi* FEB 2020

CERTIFICATIONS

Intro to AI in the Data Center	Coursera
Data Analytics By Robin Hunt	LinkedIN
Data, Data, Everywhere!	Google
Learning Data Analytics	Coursera
SQL Data Reporting and Analysis	Coursera
GDG Flutter Workshop 20	NIC.
Semi Finalist Mountain Arena	E-Gaming
GIS Basics - Ersi	Coursera