

Mohtashim Butt

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[Portfolio](#) | [GitHub](#)

PROJECTS

Geographically transferable DL model for urban greenspace segmentation

Bachelor's Thesis

Supervisor: [Dr. Zubair Khalid](#) (Ph.D. Australian National University)

Aug. 2023 – Ongoing

- Collected satellite imagery from [GEID](#), annotated them on LabelMe, and hosted on Roboflow.
- Fine-tuned Ultralytics YOLOv8 instance segmentation model, trained it from scratch, and overlaid NDVI mask as a post-processing technique.
- Automated stitching of Islamabad's F-7 sector images with greenspace detection for visualization purposes. | [In-Progress Report](#)

Ancient text and carving segmentation on petroglyphs via ViTs

Directed Research Project

Supervisor: [Dr. Murtaza Taj](#) (Ph.D. Queen Mary University of London)

Sept. 2023 - Ongoing

- Generated a rich dataset bank by cropping, annotating, pre-processing, and augmenting ancient South Asian rock art images and text.
- Scrutinized pre-existing transformer models like SAM and CLIP to ensure the semantic segmentation of the camouflaged carvings on the rocks.

Similarity Detection and Sentiment Analysis of Online Text

Machine Learning Project

Supervisor: [Dr. Agha Ali Raza](#) (Ph.D. Carnegie Mellon University)

Nov. 2023 - Dec. 2023

- Fine tuned sentence transformer ([SBERT](#)) architecture for text embedding generation for the specific use case and designed the pipeline for text similarity detection and the model's evaluation.
- Analyzed the sentiments and similarity of the Quora question pair dataset and classified it via Logistic Regression classifier | [Code](#).

Lane detection model | ImageNet, YOLOv7, OpenCV, TensorFlow

[View Source Code](#)

An algorithm to detect lanes for autonomous cars for traffic safety

- Designed an algorithm (using LaneNet and YOLOv7) for a car to automatically detect Lanes and vehicles on the road, which will assist in autopilot.
- Developed a dynamic homography mechanism to display an orthographic top-view of the Lane.

INDUSTRY EXPERIENCE

Technical Content Intern

[Educative Inc.](#)

Area: Research and Development

June. 2023 - Aug. 2023

- Conducted extensive research about the topics related to computer vision, computer graphics, and ML and curated around **58** quality articles.
- Worked closely with the senior Technical Content Engineers to set up docker files and push them to Educative's docker repository. | [My profile](#).

TEACHING EXPERIENCE

Teaching Assistant

Computer Vision Fundamentals (CS-5310)

Instructor: [Dr. Murtaza Taj](#)

Fall-2023

- Helped the instructor of this graduate-level course by grading components, conducting office hours, delivering tutorials, making the programming assignments, and taking the lead in the graded final project.
- Revamped the course structure by incorporating Hugging Face and Roboflow use.

SKILLS

- **Languages / Frameworks:** C, C++, Python(w/ NumPy, sci-kit learn, pandas, Keras, TensorFlow, PyTorch, OpenCV, matplotlib, NLTK), MATLAB, TypeScript, React, HTML, CSS, SQL and no-SQL database, Git, Docker, Haskell, Proteus, Arduino, LLM.

EDUCATION

Lahore University of Management Sciences – BS Computer Sciences

Lahore, Pakistan

Relevant Courses: Computer Vision, Introduction to Artificial Intelligence, Machine Learning, Speech and Language Processing with Generative AI, Deep Learning

Aug. 2020 – May 2024