Shataxi Dubey

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Academic Details

Degree	Specialization	Institute	Year	CPI/%
M.Tech.	*Computer Science and Engineering*	Indian Insitute of Technology Gandhinagar	2023-Present	9.44
B.Tech.	*Computer Science and Engineering*	University of Allahabad	2018-2022	9.43

Work Experience

Associate Engineer [May 22 - Jun 23]
(IndiaMart Intermesh Ltd, Noida Uttar Pradesh)
- Developed a Flask API to load model pickle files, enabling the generation of smart replies for user interactions.
- Implemented concurrent execution of processes using threading, reducing the time from 1 sec to 600ms.
- Generated smart replies using TF-IDF and Kmeans & glove and cosine similarity for word embeddings & clustering.
- Integrated API with PostgreSQL database for suggesting text messages based on user reply patterns.
- Analyzed the data of user replies by writing complex SQL queries and created views for data analysis on datamarts.

Teaching Assistant [Aug 23 - Present]
(Indian Institute of Technology Gandhinagar)
- **Data Structures and Algorithms I:** Guided a group of 30 students on C programming assignments, evaluating their work, and responsibly managed invigilations to ensure the smooth operation of the course.
- **Data-Centeric Computing:** Evaluated assignments and resolved doubts related to numpy, pandas and SQL.
- **Machine Learning:** Conducted viva and tutorial session on convex functions for a class of 150 students.
- **Probability Statistics & Data Visualisation:** Conducted viva, evaluated assignments and solved students doubt related to numpy, pandas, torch.

Software Developer Intern [May 21 - Jul 21]
(Rehabilitation Society of the Visually Impaired, Lucknow, Uttar Pradesh)
- Developed the website for the organization using React and enhanced the responsiveness of the website.
- Awarded Star Intern of the Week Award in the software developer internship in June 2021.

Research Experience

Brick kiln detection from Satellite Imagery using Vision Language Models [Jan 2025 - Present]
(M.Tech Thesis)
- Implemented GeoChat, PaliGemma, Florence2, Qwen2.5 VL, Yoloe for open vocabulary detection task.
- Achieved consistent performance with Yoloe in domain shift from Lucknow to West Bengal region.
- Achieved 41% precision on West Bengal region with Yoloe by visual prompting it with visuals of Lucknow region.
- Made open source contribution by integrating LoRA configuration in Maestro library developed by Roboflow.
- Curated dataset using Geemap for Lucknow and West Bengal region with Planet imagery.

Space to Policy: Scalable Brick Kiln Detection and Automatic Compliance Monitoring with Geospatial Data [Aug 24 - Dec 24]
(Accepted in ACM Journal on Computing and Sustainable Societies 2025)
- Successfully detected 30638 kilns in the Indo-Gangetic Plain covering 5 states using Yolo11-l model.
- Achieved 0.94 correlation between detected brick kiln count and the state government survey counts.
- Extracted District-wise count of brick kiln using shapefiles of the state where no survey is conducted till date.
- Implemented the Faster-RCNN detection model and non-max suppression for removal of multiple detections.

Eye in the Sky: Detection and Compliance Monitoring of Brick Kilns using Satellite Imagery [Jan 24 - Apr 24]
(Indian Institute of Technology Gandhinagar)
- Presented the paper through poster presentation at ACM COMPASS 2024, held at IIIT Delhi.
- Implemented Yolov8m model on high resolution satellite imagery and successfully identified 19579 brick kilns in the Indo-Gangetic Plain using iterative fine-tuning, conducted compliance monitoring as well.
- Analysis using KD trees shows that 50% kilns violate inter-brick kiln and 16% violate brick kiln-hospital distance.

Projects

Image Caption Generator [Mar 22 - Apr 22]
(University of Allahabad)
- Built an LSTM-based model for image caption generation, used pretrained Xception for image feature extraction.
- Used tokenizer for vectorization of captions of images, trained the model on a dataset of 800 images and captions.
- Measured the accuracy of the model using BLEU score, the BLEU score of the model was 0.36.

Diabetes Detection using Machine Learning Techniques [Nov 21 - Dec 21]
(University of Allahabad)
- Performed data preprocessing and performed feature selection for minimum redundancy and maximum relevance.
- Applied supervised machine learning algorithms Logistic Regression, SVM, KNN, Random Forest and XGBoost.

- Achieved accuracy of 82% with logistic regression when relevant features are selected & 80% with Random Forest.

News Web App with Speech Synthesis [Jan 21 - Feb 21]
(University of Allahabad) | Project Link
- Developed a web app that reads aloud daily news feeds, monitors screen time, and sends screen time alerts.
- Integrated database to help users organize the news feeds in a separate space according to their user id.
- Employed Web Speech API for speech synthesis, passed data to the utterance queue of the speech controller.
- Deployed server-side on Heroku, frontend on Firebase using MongoDB, React, Express, and Node.

Technical Skills

- **Languages:** Python, SQL, Fundamentals of C, Javascript, CSS.
- **Framework/Tools:** Numpy, Pandas, geopandas, ultralytics, geemap, Unsloth, opencv, NLTK, Sklearn, PyTorch, Git.
- **ML Algorithms:** Machine Learning, Deep Learning, Natural Language Processing, Computer Vision.
- **Courses:** Data Structures and Algorithms, Database Management System, Operating System, Computer Networks.

Achievements

- Awarded third prize for presenting the research work in Simply Speaking 2025 at IIT Gandhinagar.
- Awarded Emerging Star of the Month twice, in September 2022 and February 2023 at IndiaMart Intermesh.
- Awarded Star Intern of the Week Award in Rehabilitation Society of the Visually Impaired in June 2021.
- Qualified Bronze Level of Teco Booster track of Code Predators organized by Ramarao Adik Institute of Technology and Mentor Buddy in June 2020.