Kshitij Pawar

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Education

University of Southern California GPA:3.7/4.0
Master of Science in Computer Science May 2025

University of Mumbai GPA:9.5/10.0
Bachelor of Engineering in Computer Engineering Jun 2021

Experience

Graduate Research Assistant Jan 2024 – Present
University of Southern California Information Sciences Institute

- Design and fine-tune multimodal deep learning models, analyze video and text data, leverage annotated dataset for identifying harmful content in automated content moderation for TikTok and Reddit
- Manage analysis of over 35 million tweets to forecast community reactions to major sociopolitical events, enhancing fine-tuned LLaMA-3 models for charting change in public sentiment
- Analyze public opinion shifts across social media platforms and identify significant sentiment changes like a 22% increase in vaccine mandate support and a 25% rise in opposition to Roe vs. Wade from Twitter data
- Deploy fine-tuned GPT-based models on HuggingFace Hub and as Docker container, enabling a 30% reduction in model access time and seamless usage for collaborating teams at Northeastern University

Machine Learning Engineer Jun 2021 – Jul 2023
Tata Consultancy Services Research & Innovation Labs

- Awarded On the Spot Award for streamlining object-detection pipeline with 93% accuracy for region-of-interest extraction from brochure images with TensorFlow, Python
- Developed algorithm for title/heading extraction from scanned official documents with 80% accuracy and 25% lower inference time on edge devices using 8-bit quantization
- Mentored team of 5 undergraduate and graduate interns weekly, providing comprehensive technical support and offering research guidance, training, and deploying machine learning models with on-premise GPU architecture

Deep Learning Intern Jul 2020 – Apr 2021
Indian Institute of Tropical Meteorology

- Produced novel, customizable functions leveraging Python, Matplotlib, and Seaborn for illustrating central tendency of rainfall and derive long-term insights across the Indian subcontinent over 30 years
- Performed experiments involving spatial and temporal normalization in super-resolution models to determine best methodology and improved model accuracy by 10%
- Orchestrated research efforts for identification of correlation between diverse climate variables such as temperature, specific humidity and rainfall and validated using Willmott's Index of Agreement

Publications

Efficient Pothole Detection using Smartphone Sensors ICACC 2020
Pawar K., Jagtap S. and Bhoir S.

- Published research on efficient pothole detection system using smartphone sensors (accelerometer and gyroscope) and neural networks to improve road safety, achieving a classification accuracy of 94.78% and F1-Score of 0.8

Projects

LiveStream Sensor and Location Data | *Flutter, ReactJS, Firebase* May 2024 – Jun 2024

- Coded a data acquisition mobile app to livestream accelerometer, gyroscope and GPS to Realtime Database
- Formulated a ReactJS web app hosted on Firebase to visualize streamed sensor and location data using ChartsJS

LoreVault: Video Game Wiki App | *Flutter, Python* Feb 2023 – Mar 2023

- Devised mobile app using Flutter to view collectibles and lore information on Android and iOS
- Streamlined web crawling with Spyder to efficiently scrape data from Fandom website
- Implemented question-answering interface with Google Gemini API and wireframing UI elements from source

Technical Skills

Languages: Python, Java, C/C++, Dart, SQL, JavaScript, HTML/CSS
Courses: Coursera Deep Learning, TensorFlow in Practice, IBM Data Science, Udemy Flutter
Frameworks: Flask, Django, Flutter, TensorFlow, PyTorch, ReactJS, Apache Spark
Libraries: Matplotlib, Spacy, Scrapy, Pandas, Xarray, Scikit-learn, openCV