Parth Bhanderi

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SKILLS & INTERESTS

Programming Languages: Python (Django, Fast API, Flask), R, SQL, C, C++, MATLAB
Machine Learning and AI: Scikit-learn, TensorFlow, PyTorch, Langchain, MLflow
Database and Data Storage: SQL, MongoDB, Pinecone, Elasticsearch, ChromaDB
Big Data and Cloud: AWS, Azure, GCP, Hadoop, Spark, Docker, Kubernetes
Development and Collaboration: Git, CI/CD tools (Jenkins, GitHub Actions), Jira
Data Visualization: Tableau, Power BI, Streamlit

PROFESSIONAL EXPERIENCE

Critical Start INC — **Plano, Texas, US**
AI Engineering Intern — ***June 2024 - August 2024***

- Developed LLM-based phishing detection system using **GPT-4**, achieving 97% accuracy across 2,000+ emails
- Reduced SOC analysts' time by **60%** in creating phishing email reports by automating with **RAG**
- Built ML classification models (Logistic Regression, SVM) for phishing email detection with 94% accuracy
- Automated security alert summaries using GPT-4, reducing report redundancy and token costs by 20%

University of North Texas — **Denton, Texas, US**
Research Assistant *at Visual Computing and Biometric Security Lab* — ***January 2024 - present***

- Pioneered state-of-the-art unified voice anti-spoofing system, detecting both physical and logical attacks with **98%** accuracy on Dev set and 95% accuracy on Evaluation set with **5%** average **EER**.
- Engineered robust acoustic features using **ESResNeXt** architecture on **300,000+** ASVspoof2019 samples
- Implemented novel deep learning solution for **INTERSPEECH 2025** publication, surpassing existing methods in voice spoofing detection

FlyOnTech Solutions — **Surat, Gujarat, India**
Python Developer — ***April 2022 - December 2022***

- Reduced server response time by **40%** by designing high-performance **REST**ful APIs with **Django and Flask**
- Designed a modular project structure, reducing bugs by 20%, thus improving code quality
- Established streamlined **CI/CD** deployment on **AWS** through **GitHub Actions**, reducing deployment time by 40%
- Performed comprehensive data cleaning and feature engineering to enhance the dataset's quality and relevance for modeling by 20%

PROJECTS

Image Similarity Search App

- Created and expertly annotated **5000-image** dataset using advanced **CLIP** embeddings across 20+ diverse categories
- Implemented distributed FAISS search with pre-trained **CLIP ViT-L/14**, achieving consistent 92% precision@10
- Integrated efficient parallel processing ResNet-50 feature extraction, substantially reducing query time by 70%
- Optimized search using Annoy and Elasticsearch, delivering sub-100ms responses **for 100K+ images**

PDF Q&A Application

- Reduced content search time by **5x** using Retrieval Augmented Generation (RAG)
- Saved 80% monthly on OpenAI billing and reduced API calls by using **'google/flan-t5-base'** with ChromaDB
- Boosted engagement by 30% through interactive MCQ-based arcade games integrated into the app

Sports Person Classification

- Enhanced dataset quality by 30% using a Selenium-based web scraping pipeline and Haarcascade feature extraction
- Improved feature extraction efficiency by 45% using Wavelet Transform over traditional FFT methods for image analysis
- Trained ML models (SVM, Logistic Regression, Random Forest) achieving 90% accuracy in celebrity classification.

Road Accident Detection using CNN (Convolutional Neural Network)

- Gather a diverse dataset of **3000 images** and video clips containing examples of car crashes and non-crash scenarios
- Trained a Convolutional Neural Network (CNN) with 2 million+ parameters on a labeled dataset for pattern recognition in car crashes, achieving an enhanced model with **95% accuracy**

ACHIEVEMENTS

- HackUNT 2024 Winner – MLH Databricks Best Opensource AI Project Challenge
- Best student award at VNSGU
- HackTX 2024 Honorary mention for InterSystem’s challenge

EDUCATION

University of North Texas — **August 2023 - May 2025 (Expected)**
Master's, Artificial Intelligence — **GPA - 4.0**

- **Relevant Courses:** Machine Learning, Deep Learning, Feature Engineering, Big Data and Data Science

Veer Narmad South Gujarat University — **June 2018 - July 2021**
Bachelor's, Computer Applications — **CGPA - 9.11**