PRITHVI SHIRKE

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OBJECTIVE

Aspiring Machine Learning Engineer with experience as a Research Assistant focusing on computer vision and large language models. Led a project with the Arizona Department of Transportation, developing prompt engineering strategies and deploying solutions via AWS. Previously, as an AI and ML Developer Intern, implemented real-time video analytics, reducing vehicle wait times by 42%. Eager to leverage expertise in AI and ML to drive innovative solutions.

EDUCATION

Master of Computer Science (Big Data Systems)   Expected May 2025
Arizona State University, Tempe, Arizona   **GPA: 4.0/4.0**
Relevant Courses: Digital video processing, Statistical machine learning, Data Visualization, Blockchain & Data mining.

Bachelor of Technology in Electronics Engineering   May 2022
Veermata Jijabai Technological Institute, Mumbai, India   **GPA: 3.20/4**

TECHNICAL SKILLS

Programming languages: Python, C++, Java, SQL, JavaScript, Kotlin, and Bash/Shell Scripting. (SQL Cerificate)
Tools & Framework: Tensorflow, PyTorch, AWS, Spark, Hadoop, Scikit-learn, Pandas, OpenCV, CUDA, TensorRT, Docker, Github, MongoDB, MySQL, Postgres, Node.js, Flask, Javascript D3, & React. (Deeplearning Certificate)

PROFESSIONAL EXPERIENCE

Research Assistant - AI, Computer Vision, and Large Language Models | **Arizona State University**   Sep 2023 – Present
- Developed **prompt engineering strategies** using **LangChain** and **OpenAI** with **Python**, deploying applications on **AWS Sagemaker**, **Bedrock**, **S3** and **EC2** for scalable AI solutions.
- **Visualized and optimized transportation networks** using **OpenStreetMap** data, enhancing logistics and planning in collaboration with the **Arizona Department of Transportation (ADOT)**.
- Conducted research under Prof. Hua Wei in **Computer Vision** and **Large Language Models (LLMs)**, driving improvements in **data analysis** and **model efficiency**.

Software Engineering Associate | Telstra Global Business Services LLP | Pune, India   Jul 2022 – Jul 2023
- Directed **10+ tasks** & **3 projects** using Jira in an **Agile** environment, ensuring timely delivery and team collaboration.
- Developed comprehensive **J-unit test** cases, integrating with GitHub's **CI/CD** pipeline for testing and deployment, which enhanced code reliability and reduced deployment errors
- Engineered the migration of "Boost" service into Telstra application utilizing **JavaScript**, Kotlin, React, and **MySQL**, optimizing system performance and functionality.

AI and ML Developer Intern | Airpix Geoanalytics | Mumbai, India | demo   Jul 2020 – Jul 2021
- **Implemented real-time video analytics** for vehicle detection and tracking using **computer vision** and **deep learning**, enabling efficient monitoring.
- Developed a **multiprocessing**, **multithreading**, and **asynchronous system** with Python, optimizing performance for high-throughput data processing.
- **Optimized and deployed CV models** using **OpenCV**, **CUDA**, and **TensorRT** on **NVIDIA Jetson Xavier**, reducing vehicle waiting time by **42%** at toll plazas.
- Designed a scalable **data pipeline** with **MongoDB** and integrated live data streaming on a **React frontend**.

PUBLICATION (First Author)

"SynTraC: A Synthetic Dataset for Traffic Signal Control from Traffic Monitoring Cameras" **Prithvi Shirke**, Tiejin Chen, et, al. 27th IEEE International Conference on Intelligent Transportation Systems (**ITSC 2024**). [**paper, code**]
- Authored a novel methodology leveraging **Carla Simulator** & reinforcement learning to optimize traffic outcomes.
- Deployed a scalable dataset pipeline on **AWS**, containerized with **Docker**, and shared findings via **GitHub**.
- Designed a robust **data pipeline**, integrating object detection, lane classification, and RL models into the Simulator.

PROJECT

BattleLens – Frontend Project | live demo
- Developed interactive **data visualizations** using **D3.js, Leaflet.js, Scrollama, & JavaScript**, to explore Middle East conflict.
- Implemented **scrollytelling mechanics** for narratives, enhancing user engagement and conflicts analysis

Bank Security System | demo
- Implemented a custom trained **weapon detection model** (Yolo-v5) using **Tensorflow, Jupyter Notebook**, & **CUDA**.
- Implemented **LSTM** with 91% accuracy for **pose detection** to detect unusual behaviors and unrestricted access.
- Improved bank security by **30%** by analyzing incident reduction, threat detection rate, & response time.

AI-Based Crop Recommendation App For Farmers | project
- Curated a dataset for crops, performed data cleaning, & feature extraction using **Numpy**, **Pandas** and **Scikit-learn**.
- Developed a bilingual **NodeJS** application and deployed a real-time crop prediction **Flask** server on **Oracle** Cloud.
- Recognized **Top 10** in Gov-TechThon, an IEEE-organized virtual hackathon, for achieving **99.30% accuracy.**