PRITHVI SHIRKE

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EDUCATION

Master of Computer Science (Big Data Systems) **Expected May 2025**
Arizona State University, Tempe, Arizona **CGPA: 3.94/4**
Relevant Courses: Advanced computer graphics, Digital video processing, Statistical machine learning, Data mining, Data Visualization & Data processing at scale.

Bachelor of Technology in Electronics Engineering **May 2022**
Veermata Jijabai Technological Institute, Mumbai, India **CGPA: 3.20/4**
Relevant Courses: Microprocessors, Computer Networks, Operating Systems, Database Management Systems.

TECHNICAL SKILLS

Programming languages: Python, C++, Java, SQL, JavaScript, Kotlin, and Bash/Shell Scripting.
Tools & Framework: TensorFlow, PyTorch, Scikit-learn, Keras, NumPy & Pandas, OpenCV, CUDA, TensorRT, ONNX, Docker, Kubernetes, Git, AWS, Matlab, Tableau, MongoDB, MySQL, Node.js, Flask, and React.
Areas of Expertise: Machine/Deep Learning, Computer Vision, Artificial Intelligence and Communication Skills.

PROFESSIONAL EXPERIENCE

Research Assistant & Grader (CSE 572 - Data Mining) | Arizona State University **Jan 2024 – Present**
- Overseeing test-taking environments, managing test materials, grading assignments, monitoring online platforms.
- Exploring data mining concepts, resolving student doubts, and delivering foundational tutorials.

Software Engineering Associate | Telstra Global Business Services LLP | Pune, India **Jul 2022 – Jul 2023**
- Engineered a new service in the Telstra application, utilizing JavaScript, TypeScript, Kotlin, React, and MySQL.
- Directed tasks and projects using Jira in an Agile methodology environment.
- Developed comprehensive Junit test cases, integrating with GitLab's CI/CD pipeline for testing and deployment.
- Gained experience with Bamboo, Bitbucket, Splunk, and Salesforce technologies.

AI and ML Developer Intern | Airpix Geoanalytics | Mumbai, India | demo **Jul 2020 – Jul 2021**
- Implemented real-time video analytics of vehicles using computer vision and deep learning.
- Utilized the SSD frameworks and Deepsort models for vehicle detection, classification and tracking.
- Created multiprocessing and a multithreaded system using python libraries.
- Implemented an asynchronous programming technique (async io) to write concurrent python codes.
- Optimized the code on Jetson Xavier Board using TensorRT for NVIDIA GPU inference.
- Collaborated with Number Plate Recognition team and deployed the solution on Toll Plazas which reduced the waiting time of the vehicles by 42%.

PUBLICATION

Accepted Paper: *"SynTraC: A Synthetic Dataset for Traffic Signal Control from Traffic Monitoring Cameras"* at the 27th IEEE International Conference on Intelligent Transportation Systems (**ITSC 2024**). [paper, code] **Sep 2023 – Jul 2024**

- In the SynTraC project, I focused on optimizing traffic outcomes using artificial intelligence. I developed Python scripts in Carla (Unreal Engine) to create a comprehensive dataset, incorporating data cleaning, analysis, and mining techniques. My role extended to orchestrating traffic lights and simulating diverse real-world scenarios to ensure optimal training for the reinforcement learning (RL) model. I designed a JSON file structure to efficiently manage large-scale data, including images, traffic conditions, vehicle coordinates, and reward values, enabling offline training of the RL agent and validation in the Carla simulator. Additionally, I tested the entire model on a real-world dataset obtained from Arizona State Transportation, fine-tuned the object detection model, and integrated the trained RL model into the simulator for real-time vehicle detection and decision-making at intersections. Finally, I dockerized the entire application, uploaded it to Docker Hub, provided thorough documentation on GitHub, and shared the dataset on Hugging Face.

PROJECT

Diffusion Models for Generative AI | project **May 2024 – Aug 2024**
- Presented a talk on diffusion models, focusing on their edge over GANs in image synthesis.
- Explained forward/reverse diffusion processes, classifier-free guidance, and latent models.
- Discussed DALL-E 2 and Google's Imagen, emphasizing superior image quality.
- Highlighted real-world applications and the diversity of generated images.

AI-Based Crop Recommendation App For Farmers | project **Jan 2020 – April 2020**
- Curated a comprehensive dataset for 30 crops, performed data cleaning, and feature extraction for training a machine learning model (ANN) in Python.
- Leveraged NodeJS to develop a bilingual (English and Hindi), user-friendly application.
- Deployed a Python Flask server on Oracle Cloud for real-time crop prediction.
- Recognized top 10 in Gov-TechThon 2020, an IEEE-organized virtual hackathon, for achieving 99.30% accuracy.