Varun Reddy Chanda

ML Engineer

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Education

- **Texas Tech University** — Lubbock, TX
  *Master of Science in Computer Science; GPA: **3.91*** — *Aug. 2023 – May 2025*
  - **Relevant Coursework:** Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Scalable Data Systems

Experience

- **TCR INNOVATIONS** — Navi Mumbai, IN
  ML Engineer — *June 2021 - Dec 2021*
  - Developed scalable and interpretable ML models, optimizing efficiency for fraud detection., achieving **99.96%** accuracy in classifying fraudulent transactions.
  - Designed and optimized multiple models, including **Logistic Regression (99.90%)**, **Decision Tree (99.96%)**, **Random Forest (99.96%)**, and **Gaussian Naive Bayes (99.19%)**.
  - Analyzed **6M+** transactions using Python **(Pandas, NumPy)**, reducing computation time by **30%**.
  - Engaged in collaboration and cross-functional teamwork by working with diverse teams to implement **AI-driven solutions** in production environments.

Projects

- **Filter Pruning in Deep Neural Network**
  Model Compression and Optimization in Deep Learning
  - Optimized **VGG16** model using filter pruning, reducing size by **40%** while maintaining **92%** accuracy.
  - Improved scalability and efficiency by developing custom pruning methods leveraging clustering techniques, achieving **38%** computational reduction.
  - Enhanced hyperparameter tuning using **TensorFlow & scikit-learn**, leading to a **30%** improvement in model convergence speed.
- **Speed Bump Detection**
  Road Safety Enhancement Using Computer Vision
  - Built a real-time object detection system using **YOLOv3** for vehicle classification, achieving **98%** accuracy with **TensorFlow and OpenCV**.
  - Collected and labeled a comprehensive dataset using **Roboflow, LabelImg, and makesense.ai**, streamlining data preprocessing and improving model training efficiency.
  - Developed a speed bump detection system by training **SSD MobileNet V2**, ensuring **95%** detection accuracy in real-time scenarios.
- **Vehicle Counting and Classification**
  Traffic Monitoring and Analysis Using AI
  - Developed a **real-time vehicle detection and classification system using YOLOv3**, achieving **98%** accuracy in identifying different vehicle types.
  - Utilized **OpenCV, TensorFlow, and DeepSORT** for efficient video processing and object tracking at **30 FPS**.
  - Optimized object detection performance by adjusting bounding box parameters and **non-maximum suppression (NMS), reducing false positives by 15%**.

Programming Skills

- **Languages**: Python, C, C++, SQL, Java, JavaScript, HTML/CSS
- **Frameworks/Libraries**: Scikit-Learn, PyTorch, TensorFlow, Pandas, NumPy, Seaborn, React.JS, Express.JS
- **Cloud Technologies**: AWS, Git, GitHub, Agile Methodologies
- **Database**: NoSQL(MongoDb), MySQL, MySQLite
- Hands-on experience with big data and scalable AI systems, specializing in large-scale ML training and inference pipelines.