Jaya Sravan Kala

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Education

George Mason University **August 2022 – May 2024**
Master of Science in Computer Science *Fairfax, VA*
Relevant Courses: Machine Learning, Data Mining, Analysis of Algorithms, Natural Language Processing

Institute Of Aeronautical Engineering **August 2017 – May 2021**
Bachelor of Technology in Information Technology *Hyderabad, India*
Relevant Courses: Object Oriented Analysis and Design, Database Management Systems, Operating Systems, Cloud Computing, Deep Learning

Work Experience

Sam's Club **Feb 2025 – Present**
Computer Vision Engineer *Remote*

- Supported large-scale retail vision system operating across 100+ cameras for automated inventory monitoring and product change detection.
- Developed YOLO-based segmentation and OBB models using structured datasets sourced from TrueSpace, achieving 97% mAP on validation sets across 2 to 3 product classes, with MLflow tracking ensuring full experiment reproducibility.
- Stabilized segmentation outputs via VSB-guided bin splitting, NMS, and mask IoU filtering, reducing duplicate/overlapping detections by 40% and improving per-frame inference reliability across 100+ retail cameras.
- Improved mask quality through boundary enforcement and polygon simplification while preserving shape accuracy.
- Designed automated image ingestion pipeline integrating Verint API and quality filters (blur, fisheye detection), increasing dataset diversity by 35% and reducing retraining frequency by 2x through better temporal sampling.
- Implemented pseudo-labeling workflow publishing pre-annotated datasets to TrueSpace via Azure Service Bus, cutting manual labeling time by 50% and accelerating annotation cycles from weeks to days.
- Contributed to inventory change detection logic combining IoU-based spatial alignment, DOLG embedding similarity (cosine distance), and multimodal confirmation for robust product-level change validation.
- Developing similarity-based UPC assignment approach using rolling DOLG template embeddings from historical labeled crops to replace coordinate-dependent mapping.

Cognizant **Feb 2021 – July 2022**
Program Analyst Trainee *Hyderabad, India*

- Executed and monitored scheduled production ETL workflows (daily, weekly, monthly) to ensure reliable data availability and SLA adherence.
- Validated and reconciled datasets across MySQL and Snowflake environments to maintain consistency and reporting accuracy.
- Supported Snowflake schema design and warehouse data structuring for analytics and reporting use cases.
- Performed data cleaning and transformation using SQL and Excel to prepare high-quality datasets for downstream dashboards.
- Investigated and resolved data discrepancies in reporting pipelines, improving reliability of business intelligence outputs.
- Delivered curated datasets to dashboard and analytics teams, enabling timely generation of executive and operational reports.

Projects

Multimodal Fake News Detection (CLIP + ViLT)

- Built multimodal machine learning system to detect inconsistencies between article text and associated images using CLIP and ViLT embeddings.
- Implemented cross-modal similarity comparison using cosine distance to identify misleading text–image pairs.
- Developed evaluation workflow and attention-based interpretability analysis to inspect model predictions.

Formula 1 Data Analytics Pipeline

- Designed and implemented end-to-end data pipeline using Azure Data Factory, PySpark, and Delta Lake to process race, driver, and constructor datasets across multiple seasons.
- Built batch and incremental ingestion workflows with schema enforcement and optimized partitioning to support reliable time-series analytics.
- Developed ETL transformations and aggregated datasets for race performance, driver statistics, and trend analysis.

Technical Skills

Languages: Python, C, HTML/CSS, JavaScript, SQL, Bash
AI & Computer Vision: PyTorch, Yolov11(OBB, Segmentation, Detection), Ultralytics, OpenCV, HuggingFace Transformers, DOLG Embeddings, TorchScript, Shapely (Geometric Mask Processing)
MLOps & Deployment: MLflow (Model Registry & Versioning), ONNX Runtime, Model Quantization, CI/CD Pipelines
Cloud & Infrastructure: Azure (Service Bus, Cosmos DB, Identity), Google Cloud Vision, GitHub Enterprise, Linux/SSH
Data & Engineering: Pandas, NumPy, Data Augmentation, REST APIs, Unit Testing

Certifications

- Microsoft Certified: Azure Data Engineer Associate (DP-203), AWS Certified Cloud Practitioner