ARISTOTELIS TSOUTSANIS

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SUMMARY

Shipped object detection across YOLO and DETR, a VLM validating harsh-driving events from front-view video, and multi-GPU training on 8x A100s. MSCA PhD in progress.

WORK EXPERIENCE

OSeven Telematics, Remote Dec 2024 - Present

Machine Learning Engineer

- Built a VLM pipeline to cut false positives in harsh-braking and harsh-acceleration detection, testing the Qwen model family with one-shot prompting and fine-tuning to confirm IMU-flagged events against front-view camera frames.
- Reduced false-positive harsh-cornering events by 4% by developing a self-supervised model on spatio-temporal telematics and infrastructure data from 4,000+ driving sessions, improving driver-score accuracy.

PreciTaste, Munich, Germany Oct 2022 - Sep 2024

Machine Learning Engineer

- Improved real-time object detection by +3.6 mAP@0.5:0.95 across YOLOX, YOLOv8 and DETR, using custom motion-blur augmentations and ONNX-optimized inference; stabilized tracking in low-FPS production deployments.
- Built and optimized a deep-learning training pipeline for object recognition and detection, supporting distributed multi-GPU training on 8x A100 GPUs.
- Reduced training compute by 20% by aligning vision and text encoder embeddings into a shared latent space with contrastive learning, then fine-tuning a LLaVA-style Vision-Language Model with LoRA, QLoRA and PEFT to bypass the LLM pre-training phase for image recognition.
- Standardized ML deployment and experiment tracking for 4 cross-functional teams (Podman, CI/CD, MLflow), centralizing 1000+ experiments and model versions.
- 3x increase in image-labeling throughput via a GPU-accelerated FastAPI backend integrated with Meta's Segment Anything Model (SAM).

Hellenic Forces, Nicosia, Cyprus Sep 2021 - May 2022

Software Engineer (mandatory military service)

- Built a CRM for military department 196 A/K MBP, automating task allocation.

Netera Software, Athens, Greece May 2018 - Dec 2019

Software Developer

- Developed an Android application used by 500+ hotels (Xamarin, .NET).

EDUCATION

Technical University of Athens, Athens, Greece Oct 2024 - Sep 2027

Marie Skłodowska-Curie PhD Fellow, MSCA Doctoral Network IVORY

- Multimodal driver-behavior modeling (vision and IMU fusion) for predictive road safety.
- 4-month secondment at Haskoning (NL): built a multimodal IMU and dual-camera perception pipeline.

Technical University of Munich, Munich, Germany Oct 2022 - Sep 2024

Master's in Computer Science, Computer Graphics & Vision, Machine Learning & Analytics, Robotics

- Smartfield: finished 2nd of 5 competing traditional fields by developing yield-forecast ensemble models to optimize fertilizer application.
- Image recognition using pre-trained LLMs and vision encoders, supervised by Prof. Felix Dietrich.

National & Kapodistrian University of Athens Oct 2016 - Sep 2021

Bachelor's in Computer Science

- Image classification and clustering in C++ (KNN classifier with Locality-Sensitive Hashing).

SKILLS

Architectures: YOLO (YOLOX / YOLOv8), DETR, VLMs, LLMs, Segment Anything (SAM)
Core ML: PyTorch, ONNX, OpenCV, CUDA, distributed training, self-supervised learning, contrastive learning, sensor fusion
MLOps & Cloud: MLflow, DVC, Docker / Podman, Kubernetes, Airflow, CI/CD, AWS, GCP
Languages: Python, C++ • Greek (Native), English (C2), German (B2)