

MOUMENI DHIA

Senior Computer Vision Engineer — AI ·
Agentic Systems · MLOps

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SUMMARY

Computer Vision Engineer with **6+ years of experience** building real-time video-analytics systems for construction sites: object detection, multi-object tracking, re-identification, PPE analysis and large-scale video understanding. Designs **end-to-end ML pipelines** — data collection, annotation, training, continuous retraining, deployment — and optimizes models for **distributed and edge deployment (NVIDIA Jetson)** across large camera networks. Currently building **agentic AI**: LLM agents grounded in multi-camera video, with strong applied **prompt engineering and evaluation** practice.

EXPERIENCE

Lead AI & Computer Vision Engineer — Evercam Construction Cameras 2019 – Present

- Designed and deployed real-time computer vision models for **object detection, tracking, re-identification, PPE detection and behavioral analysis** on live construction-site camera feeds.
- Built end-to-end ML pipelines covering data collection, annotation workflows, training, evaluation, **continuous retraining** and deployment.
- Developed robust multi-camera tracking powering **smart search** and movement analysis across sites.
- Implemented video-analytics features: crane-activity detection, material classification, pose estimation, luminance/outage monitoring, camera-movement detection, 360° human blurring.
- Optimized detection and tracking models for **edge deployment on NVIDIA Jetson**, reducing inference latency and enabling real-time processing.
- Developed scalable backend services and APIs (**FastAPI, Pydantic, SQLAlchemy, Postgres, TimescaleDB, PostGIS**); improved reliability with distributed processing, message queues and robust failure handling.
- Designed **MLOps workflows** for automated model versioning, CI/CD, monitoring and production rollout at scale.
- Delivered major product applications: **Gate Report, Smart Search, Observations, PPE Analytics, Workflows, Site Agent**.
- Put **LLMs and AI agents into production**; mentored junior engineers through reviews, architecture guidance and technical leadership.

Computer Vision Engineer — Evercam Construction Cameras 2019 – 2021

- Conducted R&D on deep-learning models for object detection, segmentation and tracking.
- Built data pipelines for dataset generation, annotation tools and benchmarking metrics.
- Developed early generations of production detection models and video-processing pipelines.

Software Engineer & Mobile Developer — IT Synergy 2017 – 2019

- Developed Android geolocation applications in Java; built web applications with Laravel (PHP) and Vue.js, delivered across multiple industries.

TECHNICAL SKILLS

PERCEPTION Python · PyTorch · TensorFlow · OpenCV · object detection · multi-object tracking · re-identification · segmentation · pose estimation · feature matching · NVIDIA DeepStream · Jetson edge AI

GENAI & AGENTS LLMs · agentic AI · prompt engineering · transformers · tool-use orchestration · evaluation (evals)

BACKEND FastAPI · Pydantic · SQLAlchemy · PostgreSQL · TimescaleDB · PostGIS · RabbitMQ · Redis

DEVOPS / MLOPS Docker · CI/CD · model versioning & deployment · Grafana · Loki · Prometheus · AWS (S3, EC2, ECR) · SeaweedFS

SELECTED PRODUCTION APPLICATIONS

Gate Report — vehicle detection & classification at site gates; automated delivery logs.	360° Human Blur — real-time privacy blurring in 360° cameras.
Smart Search — cross-camera person/machine search via re-identification.	Workflows — customer-defined detection zones, rules and conditions.
Observations — automated visual observations with camera evidence.	Site Agent — LLM agents answering questions grounded in site video.
PPE Analytics — helmet & vest compliance monitoring on live feeds.	

EDUCATION & CERTIFICATIONS

M.Sc. Artificial Intelligence — USTHB	2015 – 2017
B.Sc. Software Engineering — USTHB	2012 – 2015
DeepLearning.AI Professional TensorFlow Developer · DeepLearning.AI Advanced TensorFlow Techniques · Deep Learning Specialization (Coursera)	

LANGUAGES

Arabic — native **French** — professional **English** — professional