Enrique G. Ortiz, Ph.D.

Senior Applied Computer Vision / Machine Learning Scientist

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Summary

Senior Applied Scientist & Computer Vision lead with 10+ years architecting high-performance Edge AI and recognition systems. Expert in data-centric ML, using synthetic data pipelines and GenAI to cut model development cycles by 70%. Proven track record deploying optimized, real-time inference on constrained hardware (mobile/IoT). Deep expertise in object detection, temporal modeling, and scaling ML infrastructure 0-to-1 across research, engineering, and product teams.

Technical Skills

Deep Learning: PyTorch, TensorFlow, Hydra, CNNs, Transformers, Spatial Temporal Modeling, Computer Vision, Object Detection, Face Recognition, Human Action Recognition, Vision Language Models (VLMs)
Edge AI & GPU Inference: TensorRT, ONNX Runtime, Triton Server, CUDA, Quantization, Real-time Optimization (iOS/Edge)
Data-Centric AI: Synthetic Data Generation, Object-Insertion Augmentation, Automated Evaluation Pipelines
MLOps & Engineering: Python, C++, End-to-End Orchestration, Experiment & Dataset Tracking, High-Throughput Inference

Experience

Senior Research Scientist II | Axon Enterprise, Inc. **April 2023 - January 2026**

- Architected a synthetic-data pipeline using diffusion-based image synthesis and VLM-guided auto-labeling to generate labeled training imagery for redaction detectors, cutting research-to-production transition from 8 months to 2-3 months, while supplying 30% of all training data.
- Led comprehensive deployment of advanced redaction models, improving precision/recall by 5–10% and capturing 40% of customer redaction usage.
- Co-developed an org-wide standard for multi-object tracking and detection, adopted across 3 research and product teams to unify training and evaluation, and cut duplicate tooling.
- Tech-led a 3-person team on a confidential, pre-launch computer vision research initiative, owned technical direction and architecture decisions in an ambiguous, 0-to-1 problem space.
- Delivered optimized face/head neural network-based detectors achieving a 32% recall improvement at 90% precision.

Staff Machine Learning Engineer | Peloton Interactive, Inc. **March 2021 - October 2022**

- Sole owner of machine learning algorithms for temporal exercise recognition and repetition counting, achieving <2% off-by-one error rate.
- Built an automated evaluation pipeline that went from occasional (monthly/bimonthly) model releases to weekly.

Senior Staff Machine Learning Engineer | Samsung Next **January 2020 - February 2021**

- Engineered a real-time, on-device human pose-based action recognition system for iOS utilizing computer vision and PyTorch, achieving 98% accuracy in exercise recognition.
- Hired and led a team of 3, establishing Samsung Next's initial machine learning capability alongside a scalable pipeline with lineage, versioning, and experiment tracking.

Lead Computer Vision Scientist | Sighthound, Inc. **June 2014 - January 2020**

- Engineered multi-task convolutional deep neural network for face analytics for production identity systems, achieving <1% false accept/reject rates in commercial deployments.
- Enhanced License Plate Recognition accuracy by 20% through innovative architecture adjustments and data strategies.

Selected Publications and Patents

- Patent: "Connected Fitness Systems and Methods" (PCT/US2022/022879) - exercise repetition counting, Peloton, 2022
- Patent: US 9,710,716, "Data-Enhanced Video Viewing System," Sighthound, 2018
- CVPR 2013: Face Recognition in Movie Trailers (plus issued US Patent 9,336,433B1)
- CVIU 2013: Face Recognition for Web-Scale Datasets

Education

PhD, M.S., B.S. in Computer Engineering, University of Central Florida **Center for Research in Computer Vision**
Dissertation: *Taming Wild Faces: Large-Scale, Real-World Face Recognition in Still and Video Imagery*