

KEN RAPKO

Senior AI/ML Engineer

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TECHNICAL SKILLS

Languages: Python, SQL, C, Bash

Robotics & Systems: Kalman Filtering, Event-Driven Programming, Realtime Systems, Geospatial Projections, FFmpeg

ML / AI: DSPy & Prompt Optimization, RAG Pipelines, Feature Engineering, TorchScript, TensorRTx

MLOps & Infra: Jenkins CI/CD, Infrastructure as Code, AWS ECS|SAM|S3, Docker, Active Directory, PostgreSQL

Methods: RESTful APIs, Test-Driven Development, Technical Leadership, Hiring & Interviewing

Clearance: DoD Secret Active through September 2026

PROFESSIONAL EXPERIENCE

Nike November 2024 – Present
Senior AI/ML Engineer *Remote*

- Drove a 16% lift in shopper conversion rate by architecting an end-to-end product metadata pipeline for Google Search using DSPy prompt optimized RAG pipeline.
- Led MLOps infrastructure for the team, designing CI/CD pipelines (Jenkins) that deploy Databricks Declarative Asset Bundles and AWS SAM serverless endpoints, with hardened secrets and Active Directory governance across production.
- Productionized an n-gram vectorization model with an SME-informed feature classifier across 45M BOM line items, surfacing material-swap opportunities that improved sustainability and unit economics.
- Designed a material palletization system using HDBSCAN clustering to group functionally equivalent materials, then built a downstream pipeline ranking candidates by supply consistency and unit cost — surfacing consolidation opportunities with multi-million-dollar projected annual savings.
- Deployed and maintained a PostgreSQL service delivering millisecond-latency reads to customer-facing front ends.

Lockheed Martin Corporation July 2019 – October 2024
Senior AI/ML Engineer - Computer Vision *Denver, CO*

- Promoted three times in five years for sustained high performance on flagship R&D programs.
- Secured \$100K in internal R&D funding by pitching application of Counterfactual Regret Minimization algorithms to emerging enterprise use cases; led a 3-engineer team end-to-end as Lead Engineer and Scrum Master.
- Optimized edge-inference performance by training custom YOLO models, compiling with TensorRTx to maximize execution speed, and TorchScripting geospatial modules to meet strict real-time robotic system constraints.
- Built a test-driven geospatial computer vision toolkit in Python — covering 2D-to-3D sensor projection, geoid-to-ellipsoid comparison, digital elevation modeling, iterative ground finding, and line-of-sight mapping — cutting latency by 40%+ versus the legacy implementation.
- Developed 3D voxel visualization tool to view every terrain pixel volumetrically — used in customer demos to communicate sensor accuracy and geospatial capability.
- Multithreaded a computer vision pipeline to increase throughput by 20% (FPS) after diagnosing a busy-polling failure mode.

PUBLICATIONS

MONCE Visual Object Tracking Metrics April 2022
Lead Author and Presenter — SPIE Automatic Target Recognition XXXII • arxiv.org/abs/2204.05280

- Suite of tracking metrics for long-term, multi-object, non-contiguous tracking with built-in failure-mode diagnostics.

PROJECTS

Colorado Laboratory to Combat Human Trafficking July 2025 – Present
Lead Engineer — lcht-researcher.com

- Built, deployed, and currently maintain a data science platform that curates and integrates publicly available datasets to inform education and funding decisions for the Colorado Laboratory to Combat Human Trafficking.

EDUCATION

Georgia Institute of Technology — *M.S. Computer Science (Perception & Robotics)* • GPA 3.60 Dec 2022

Virginia Polytechnic Institute & State University — *B.S. Mechanical Engineering (Mechatronics)* • GPA 3.46 May 2019