

# Ken Rapko

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## WORK EXPERIENCE

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### Lockheed Martin Corporation

August 2023 – Present

*AI Consulting Team*

*Remote*

- Retrieval Augmented Generation (RAG) with FAISS and Weviate vector databases to ground LLM on internal code repositories.
- Experience with model prompting for enhanced product experience.
- Created model training, data augmentation and best model selection components in Kubeflow to create end to end foreign object detection pipeline.
- Pitched application of Counter Factual Regret Minimization family of algorithms to emerging enterprise use cases to earn 100K of internal research and development funding. Worked as the lead engineer, project manager and scrum master for the 3 engineers working on the project.

### Lockheed Martin Corporation

November 2020 – August 2023

*AI and Machine Learning Engineer*

*Remote*

- Multithreaded Computer Vision pipeline to increase FPS 20%. Diagnosed “busy polling” to further optimize.
- Developed and published a Python-based test suite for non-contiguous, multi-object computer vision tracking.
- Implemented a test-driven geospatial computer vision toolkit in Python, reducing latency compared to existing code by over 40%. The toolkit included 2D-to-3D sensor projection, geoid-to-ellipsoid comparison, digital elevation modeling, iterative ground finding, and line of sight mapping. Additional integration with cloud-based storage to automate pulling digital elevation data, which was previously done manually.
- Developed a UDP and STOMP messaging client to reduce network strain in distributed edge deployments and supported broker-based messaging systems like RabbitMQ and ActiveMQ.
- Utilized synthetic data to pretrain detection model weights and optimize performance when compared to real data alone.

## PUBLICATIONS

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### MONCE Visual Object Tracking Metrics

April 2022

*Lead Author and Presenter - SPIE Automatic Target Recognition XXXII - <https://arxiv.org/abs/2204.05280>*

## SKILLS & INVOLVEMENT

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**Programming Languages:** Python, (C/C++), (Java)

**Libraries:** PyTorch, OpenCV, NumPy, Pandas, GStreamer, TensorRT, Kubeflow, Docker

**Software:** Unix/Linux, LaTeX, Gitlab CI/CD

**Practices:** Automated Testing, DevOps, Object Oriented Design, SOLID Principles, Test Driven Development

## EDUCATION

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### Georgia Institute of Technology (GPA: 3.60/4.00)

December 2022

*MS, Computer Science*

- Specialization in Computational Perception and Robotics.

### Virginia Polytechnic Institute and State University (GPA: 3.46/4.00)

May 2019

*BS, Mechanical Engineering*

- Specialization in Mechatronics and Robotics.