Dr. Kevin Decker

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Highlights: 2D and 3D Computer Vision, Multimodal Perception Systems, Bridging Research and Production ML

EXPERIENCE

Staff AI/ML Researcher
Lockheed Martin | Littleton, CO | June 2025 – Present

- Promoted from individual contributor to AI/ML Research Lead and AI/ML Team Lead within 6 months, remaining hands-on while guiding technical design and development across a team of 7 engineers.
- Led development of object detection systems using DINO-DETR and DETR variants, incorporating SAR-specific pretraining approaches (SIMMIM and SAR-JEPA) with Swin Transformer backbones.
- Architected and implemented a modality-agnostic and model-agnostic ML pipeline, replacing a legacy codebase and enabling rapid experimentation across sensors, tasks, and architectures.
- Designed and deployed a comprehensive object detection metrics suite, replacing pycocotools and enabling support for both standard benchmarks and AFRL ATR/IC-specific evaluation metrics.
- Generated a Python client from OpenAPI specifications for all iSpy APIs and built tooling to streamline data interrogation and curation, scaling management of thousands of SAR images.

Senior AI/ML Researcher
Riverside Research | Fairborn, OH | June 2022 – June 2025

- Pioneered the development of neural network models leveraging 3D point-convolutions for spatial-temporal analysis of picosecond-duration events from single-photon counting camera data.
- Designed and implemented a 3D trajectory prediction algorithm using temporally directed graphs and Dijkstra's algorithm, achieving state-of-the-art performance.
- Fine-tuned Detection Transformer (DETR) for object detection on panchromatic imagery, employing transfer learning to significantly improve mAP and reduce false positives over the existing solution.
- Applied Meta's Segment Anything model for multi-object detection, image segmentation, and tracking in full-motion video.
- Contributed to the development of a neural network regression model for predicting the motion trajectory of objects from radar-based imagery. Used CycleGAN to transfer real-world data style to simulated data, increasing useable data for training.

AI/ML Researcher
Defense Engineering Corp. | Beavercreek, OH | January 2020 – June 2022

- Conducted research on multimodal fusion architectures, developing pixel and point convolution-based neural networks for semantic segmentation of lidar and hyperspectral imagery.
- Contributed to the development of a multimodal EO and lidar fusion network for semantic segmentation of the Dayton Annotated Laser Earth Scan (DALES) dataset; results were published in the 2021 IEEE AIPR Workshop.
- Created an advanced image processing software suite for lidar systems, featuring modular frameworks for calibration, statistical image processing, and AI-enhanced analysis pipelines.

AI/ML Engineer
InfoSciTex | Beavercreek OH | September 2018 – January 2020

- Developed CNN-based automatic target recognition models for lidar data and integrated them into simulation pipelines for automated dataset generation; results published in the Military Sensing Symposium.

Software Engineer
UES Inc | Beavercreek OH | May 2015 – September 2018

- Designed and deployed the Autonomous Research System (ARES) for autonomous experimentation in carbon nanotube synthesis; published in *npj Computational Materials*.

EDUCATION

Ph.D. in Computer Science
Air Force Institute of Technology | WPAFB, OH | January 2017 – December 2024

- Dissertation: "Hyperspectral and Lidar Fusion and the Evaluation of Sampling Methodologies in Remote Sensing"

MSc. in Computer Science

BA in Computer Science
University of Cincinnati | Cincinnati, OH | May 2009 – May 2015

PUBLICATIONS

Earlier works on request, or LinkedIn profile

- K. T. Decker and B. J. Borghetti. "Composite Style Pixel and Point Convolution-Based Deep Fusion Neural Network Architecture for the Semantic Segmentation of Hyperspectral and Lidar Data". Remote Sensing 2022, Vol. 14, Page 2113, 14(9):2113, apr 2022.
- K. T. Decker and B. J. Borghetti. "Hyperspectral Point Cloud Projection for the Semantic Segmentation of Multimodal Hyperspectral and Lidar Data with Point Convolution-Based Deep Fusion Neural Networks". Applied Sciences 2023, Vol. 13, Page 8210, 13(14):8210, jul 2023.
- K. T. Decker and B. J. Borghetti. "A survey of sampling methods for hyperspectral remote sensing: Addressing bias induced by random sampling". Remote Sensing, 2025.

Technologies: Python, PyTorch, OpenMMLab, Plotly, Docker/Podman, Linux, Git, LaTeX, AWS (EC2, S3, EFS, FSx)