James Simmons
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Work Experience

Algorithms/AI Engineer II - *Elbit Systems of America* *June 2023 - Present*

- Architected and maintained a modular AI and computer vision pipeline framework, accelerating deployment of Autonomous Target Recognition (ATR) on edge-compute systems
- Devised a comprehensive stereo camera calibration suite supporting diverse optical modalities—including visible light, standard 8-bit LWIR, and high-precision 16-bit micro-LWIR thermal sensors—alongside an original technique to integrate a holographic AR display into a unified calibration pipeline
- Optimized RTDETR inference pipeline to double frame throughput
- Met with DoD customers for critical direct data collection on a secure site
- Explored AI-based automation strategies for processing imagery of medical lab equipment
- Developed algorithm to project image data from one camera into the pixel space of another camera and to fuse the resulting overlaid images based on depth-to-target and camera orientation data derived from the accelerometer of an inertial measurement unit
- Designed and utilized custom framework for GPU acceleration to greatly increase framerate of camera projection and image fusion tasks
- Developed motion detection filter and Kalman tracking filters to denoise target detections
- Conducted trade study for targeting system compliance with new GCIA standards
- Maintained extensive and detailed documentation on all projects

Algorithms Engineering Intern - *Elbit Systems of America* *July 2022 - June 2023*

- Employed hyperspectral anomaly detection techniques to identify small fast-moving targets amid considerable ambient motion
- Developed system to merge and deduplicate detections produced from multiple ML models
- Utilized ensembling techniques to improve detection scale and accuracy

Junior Security Analyst - *Fortress Information Security* *May 2019 - August 2019*

- Virtual Security Operations Center (VSOC)
- Performed monthly corporate security audits
- Generated status reports on newly announced security vulnerabilities

Skills and Qualifications

Programming Languages, Libraries, Frameworks, and Tools

- Python, C, OpenGL Shader Language, Bash
- PyTorch, Tensorflow, Numpy, Pandas, Tkinter, PyPlot, PyQT
- Docker, Git, GitLab, Vim, Linux

Topics

- LLMs, CNNs, LSTM, CUDA, Computer Vision, Recommender Systems
- Object Detection/Classification, YOLO, RTDETR, ROC/Precision-Recall Curves, Model Evaluation
- Linux System Administration, Data Analysis, Model Based Systems Engineering, Hyperspectral Anomaly Detection, Camera Characterization, GPU Compute Shaders, Camera Calibration, Image-Based Pose Estimation

Education

MS, Computer Science - *University of Central Florida* *May 2023*

- **GPA:** 4.0/4.0 | **Focus Area:** Artificial Intelligence and Machine Learning
- **Relevant Coursework:** Advanced Computer Vision, Natural Language Processing

BS, Computer Science - *University of Central Florida* *December 2021*

- **Honors:** *Summa Cum Laude* (4.0/4.0 GPA), Burnett Honors College
- **Minor:** Mathematics

Leadership and Competitions

- **HACK@UCF Cybersecurity Club** - Secretary *(1 year)*
- **Collegiate Cyber Defense Competition (CCDC) Team** *(2 years)*
  - **National CCDC 2020:** 2nd Place (Business Specialist)
  - **At-Large CCDC 2020:** 1st Place (Business Specialist)
  - **NIATEC Invitational CCDC 2019:** 1st Place (Business Specialist)
  - **UBNetDef Lockdown 2019:** 2nd Place (Linux Specialist)