DAVID SWAN

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EDUCATION

Georgia Institute of Technology — Expected Dec 2025
Master of Science in Computer Science - Specialization in Interactive Intelligence — GPA: 4.00/4.00

The Pennsylvania State University — May 2022
Bachelor of Science in Computer Engineering, Minor: Mathematics — GPA: 3.72/4.00

WORK EXPERIENCE

Lockheed Martin Space — Palo Alto, CA
A/AI Research Engineer Sr — Feb 2025 – Present

- Engineered and deployed a full autonomous rover navigation system by integrating LIO-SAM for 3D-SLAM, fine-tuning NAV2 for motion control, and leveraging **ROS2** for real-time coordination
- Enabled real-time object detection and text-based waypoint navigation with Grounded SAM and custom **ROS2** Python package under a tight deadline, boosting system capabilities and securing new business opportunities
- Quantized and compiled an ATR model deployed on low-swap, path-to-flight hardware to achieve a 1500× inference speed boost, and performed quantization-aware training to increase accuracy to match pre-quantized benchmarks

A/AI Research Engineer — Mar 2024 – Feb 2025

- Accelerated SUPERRES and YOLOv8 inference by 15x on AMD and NVIDIA platforms through INT8 quantization, model pruning, and hardware-specific optimizations using **Vitis AI** and **CUDA**
- Led development of applications that interface with proprietary flight software, leveraging LiDAR and electro-optical data with deep affinity networks for real-time target identification and tracking
- Designed advanced plotting software for real-time data visualization in **Python**, leveraging multiprocessing and socket programming libraries for enhanced performance and interactivity
- Established a robust infrastructure for ground-based testing of ML algorithms on a suite of single board computers, offering a comprehensive simulation platform to boost confidence in satellite deployments

A/AI Research Engineer Asc — August 2022 – Mar 2024

- Contributed to the development of a **Gazebo** space simulation environment to support the development of collaborative motion planning software for a dual robotic arm testbench using **ROS1** with Universal Robots UR10e arms
- Created a comprehensive satellite orchestration platform using **React**, **JavaScript**, and **Tailwind CSS**

Intern — Jan 2022 – May 2022

- Fine-tuned a YOLOv5 model with **PyTorch** and deployed it on an NVIDIA Jetson
- Achieved 90% mAP (val) in detecting individuals from an aerial drone perspective using a custom trained vision model

PROJECTS

Nexus Odds - Co-Founder — August 2023 - Present

- Develop a scalable, object-oriented **Python** web scraper package for sportsbooks, significantly reducing integration time for new data sources and streamlining future additions
- Architected the webscraper pipeline using **AWS** Lambda, API Gateway, and EventBridge to standardize data collection and process thousands of data points per website every second for real-time analysis

Portfolio Website — Jan 2023

- Crafted a portfolio website using **React**, **TypeScript**, and **TailwindCSS** leveraging **Vite** and deploying on **Netlify**

ADDITIONAL

Technical Skills: Python, C++, PyTorch, TensorFlow, Vitis AI, CUDA, TensorRT, ROS, Linux, Git, Docker, JavaScript, Node.js, React, AWS
Hardware Platforms: NVIDIA Orin, NVIDIA Xavier, NVIDIA Jetson, Xilinx Versal, Xilinx UltraScale+, AMD Ryzen