Andrew Jeon

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EDUCATION

University of Washington Sep 2023 – June 2025
Master of Science in Electrical Engineering (Machine Learning, Computer Vision, Robotics) GPA: 3.87/4.0

University of Illinois at Urbana-Champaign Aug 2016 – May 2021
Bachelor of Science in Electrical Engineering GPA: 3.04/4.0

WORK EXPERIENCE

Los Alamos National Laboratories Los Alamos, NM
Post Masters R&D Intern Sep. 2025 – current
- Engineered a Conditional Score-Based Diffusion Model to generate physically constrained shock signals, enabling scalable simulation and wider shock test coverage
- Tuned Losses and hyperparameters on a Conditional Variational Auto Encoder to achieve 70% better signal reconstruction error (RMSLE, dB Error) than traditional methods.

Sandia National Laboratories Albuquerque, NM
Machine Learning R&D Intern June 2025 – Aug. 2025
- Developed 1D CNN models to detect anomalies in voltage/current sequences, achieving 100% recall and surpassing the 25% success threshold traditional analyses methods achieved, leading to a Sandia report publication
- Built a data processing pipeline converting time-series Pandas DataFrames into PyTorch datasets, enabling model training

University of Washington Seattle, WA
SLAM Research Assistant (Advisor: Dr. Bingzhao Li) Jan. 2025 – June 2025
- Calibrated and tested the MINS sensor-fusion SLAM system on public urban driving and lab rover datasets to achieve an Absolute Trajectory Error of 9.12m and 1.1m
- Modified a docker image template to include our catkin workspace with all required ROS packages

AI-Robotics Research Assistant (Advisor: Dr. Stan Birchfield) Sep. 2024 – Feb. 2025
- Developed a Synthetic Data Generation pipeline in Pybullet, that produces robot images with precise pose annotations using transformation and projection matrices.
- Evaluated a Pose Estimation Foundation Model on synthetic data, achieving 0.674° rotation and 0.655mm translation error
- Fixed OpenGL/OpenCV coordinate system mismatch, ensuring accurate comparison of ground truth and pose predictions

Data Structures Teaching Assistant Sep. 2024 – Dec. 2024
- Held office hours to clarify BFS/DFS, Recursion, Arrays, Hash Maps, Trees, Graphs for 50 students

Machine Learning Research Assistant (Advisor: Prof. Matt Golub) June 2024 – Sep. 2024
- Conducted L2 regularization and hyperparameter tuning (lambda, epochs, learning rate, weight initialization, autoregressive time steps) for low-rank auto-regressive models predicting neural population dynamics.
- Achieved 15-18% MSE improvement over baseline models, accelerating accurate spike prediction from stimulated neurons

Computer Vision Research Assistant (Advisor: Prof. Jenq Neng Hwang) Jan. 2024 – June 2024
- Built an image processing pipeline to cluster and transform fisheye camera images to grayscale
- Trained YOLOv8 detectors on transformed data, achieving 10% object detection improvement (mAP) on night-time images over detectors trained on original data demonstrating gains from preprocessing and enabling robust object detection

Texas Instruments Bellevue, WA
Field Applications Engineer Feb. 2023 – June 2023
- Assisted customers with IC design and debugging while collaborating with internal product teams to improve offerings

Tektronix Beaverton, OR
Product Applications Engineer April 2022 – Feb. 2023
- Presented and assisted with oscilloscope debugging for internal sales teams and customers, accelerating problem resolution

PUBLICATIONS

1. Valancius, J. C., Hamilton, E. L., & Jeon, J. A. (2025). Using Convolutional Neural Networks (CNN) to Determine Efficacy of Current Only Measurements in Explosive Component Testing (SAND2025-13656). Sandia National Laboratories
2. Watts, A., Newton, D., Bowering, R., & Jeon, J. A. (2025). Inverse Reconstruction of Shock Time Series from Shock Response Spectrum Curves Using Machine Learning.

PROJECTS

Image-Captioning Tactical Advisor Model and YOLOv8 Docker Deployment *April 2025 – June 2025*
- Built a data processing pipeline to extract, crop, and annotate video game frames. Trained a BLIP image-captioning model and a YOLOv8 detector on frames, achieving 78% accuracy in predicting the winning player on unseen frames.
- Wrote Dockerfile, built docker image, and deployed a container exposing a local web API for live detections

3D Open Vocabulary Semantic Segmentation for Robot Navigation *March 2024 - June 2024*
- Implemented a voxelization algorithm that projects vision and text feature embeddings from a Vision Language Model to a voxel grid enabling 3D semantic segmentation for robotic navigation
- Achieved segmentation accuracy of 0.907 on Matterport3D dataset, enabling open-vocabulary 3D navigation for robots

SKILLS & CLEARANCES

Active DOE Top Secret Security Clearance
Languages, Libraries: Python, C++, MATLAB, Pytorch, Numpy, Matplotlib, Torchvision, OpenCV, Pybullet, Pandas, Scikit-Learn
Tools: Git, Visual Studio Code, CI/CD (GitLab), ONNX, Docker, Slurm/HPC, Linux, ROS