ORVILLE ROCKWELL Jr.

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EDUCATION

Master's in Professional Studies – Applied Artificial Intelligence | Northeastern University *Expected 2027*

Research Interests: Computer Vision (Perception, 3D Geometry, Visual–Inertial Estimation); Generative Models for Biology

Bachelor of Science – Information Technology | Purdue University Global *March 2026*

Chancellor's List 2026 · Asst. Dean's Honors Student Advisory Council · NSLS Honor Society

RESEARCH EXPERIENCE

Research Contributor – GPS-Denied Visual Navigation | Brown University, Prof. Benjamin Kimia *2026 – Pres.*

- Contributing to a research team developing GPS-denied drone localization, combining visual-inertial sensor fusion with RF-beacon triangulation to maintain positioning accuracy without satellite navigation.
- Own the multi-camera sensing layer: hardware bring-up of a synchronized camera array (Raspberry Pi 5, Arducam Camarray HAT), camera calibration and frame-level time synchronization, with calibration routines and tests contributed to the group's repository.

Team Research – Deep Perception & Sensor Fusion, NUWave ROV | Northeastern Marine Robotics *2026 – Pres.*

- Developing deep-learning object detection and visual–IMU sensor fusion for the ROV's ROS perception stack, including the recognition node and its automated tests, for the MATE ROV competition.

Independent Research – Calibration-Aware Active Learning for Closed-Loop Discovery *Preliminary result*

- Simulated a closed-loop (“self-driving lab”) discovery cycle over 2,311 PTP1B inhibitors from ChEMBL to test whether calibrating the scoring model reduces the experiments needed.
- Negative result over 8 seeds (35.5 ± 3.5 vs. 35.3 ± 4.2 hits at a 360-experiment budget); traced to resolution loss: isotonic regression collapses 1,844 distinct scores into 74, making batch selection arbitrary among ties.

Course Project – Classifier-Guided Diffusion for Post-Stroke Drug Design | AAI 6600 *In progress*

- Designing a diffusion-based molecular generator whose denoising steps are steered by property-classifier gradients for blood-brain-barrier crossing, target activity and toxicity.
- Guidance classifiers trained on noised inputs and a separate held-out judge prevent the generator from exploiting its own guide; all scorers validated on scaffold splits.

Team Lead – Volatility-Aware Distributional Forecasting (VAD-LSTM) | AAI 6640, Prof. Behnaz Merikhi *2026 – Pres.*

- Leading a four-person team building a recurrent network that forecasts a full probability distribution rather than a point estimate, extending the GARCH–LSTM equivalence of Zhao et al. (2024) with an in-cell variance recursion and a Student-t output head.
- Own the ten-year dataset; validate with purged walk-forward splits, isotonic recalibration and conformal coverage.

WORK EXPERIENCE

Software Onboard Engineer | iTribe (B2C Blockchain & Fintech) *2023 – 2026*

- Built and shipped full-stack features across product rollouts spanning the Middle East, Africa, and North America.
- Led QA smoke and regression testing, sustaining a 90%+ release-readiness rate.

NOTABLE PROJECTS

CAD-LLM Platform | github.com/OrvilleRockwellJr/CadLLM

- Converts natural-language specifications into structured CAD parameters through an LLM-backed REST pipeline; designed the prompt-to-parameter translation layer and evaluated outputs against manually specified designs.

APML – Analytical Predictive ML Platform | github.com/OrvilleRockwellJr/Analytical-Predictive-ML-Platform

- End-to-end predictive pipeline from ingestion through feature engineering to training, benchmarking architectures in TensorFlow on both accuracy and inference latency.

Leakage-Safe Evaluation of Learned Signals | AAI 6610 *2026*

- Evaluation study on noisy time series using purged, embargoed cross-validation and multiple-testing correction, with every trial logged.

TECHNICAL SKILLS

Languages: Python, C++, Rust, SQL, JavaScript, HTML, R, Ruby

ML/AI: PyTorch, TensorFlow, Keras, scikit-learn, XGBoost, OpenCV, ROS, RDKit, Isaac Gym, MuJoCo, Stable-Baselines3

Tools/Infra: Docker, AWS, Linux, Git, REST APIs, Jira, Raspberry Pi, Wireshark