Michael Rusu

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Education

University of Central Florida, Burnett Honors College — Orlando, FL
B.S. Computer Science & Data Science (Double Major) — *June 2028*

Experience

University XR/VR Lab — Orlando, FL
Undergraduate Researcher — *Aug 2025 – Present*
- Conducting research on ML, XR/VR systems, and cognitive psychology.
- Assisting in the design of experimental VR/XR environments for user studies and data preprocessing.

Knight Hacks — Orlando, FL
Workshop Coordinator — *Aug 2025 – Present*
- Organized and led technical workshops for **200+ participants** across AI, ML, and software engineering topics.
- Coordinated cross-club collaborations to expand workshop outreach and engagement.

Lockheed Martin — Tampa, FL
Machine Learning Intern — *Summer 2024*
- Built and optimized a CAD/AI comparison system with a user-facing interface, improving the previous model by **80%** and cutting inspection time by **25%** (**15**+ hours saved weekly).
- Engineered and deployed production-ready ML models with less than **5%** error across **100+** validation tests.
- Collaborated with **10+ engineers** across QA and operations to establish standards and ensure product reliability.

SCC Soft Computer — Largo, FL
MIS Intern — *Summer 2023*
- Managed **200+** server port configurations and optimized network pathways, boosting real-time connectivity by **10%** for county-wide systems supporting **1000+ hospitals and labs**.
- Implemented security measures for **100+ network ports**, reducing vulnerability incidents by **20%**.
- Maintained hardware inventory and reimaged/repaired **50+** systems, minimizing downtime.

Projects

SimplyLaw — Multi-Agent Legal Automation — FastAPI, Python, Docker, Google-ADK, AWS — Spring 2025
- Won **1st Place** in the Morgan & Morgan challenge at KnightHacks VIII, a multi-agent legal automation system.
- Developed a multi-AI agent system for document analysis, case reasoning, and client communication.
- Built an **AI Orchestrator** with intent classification, keyword scoring, and agent routing; deployed the backend with AWS and Docker for fault tolerance.

RNA 3D Folding Prediction Pipeline — PyTorch, Biopython, SciPy, CUDA — Summer 2025
- Predicted RNA tertiary structures for **800+ sequences** using CRF-based secondary structure inference.
- Applied rotationally invariant normalization and graph contact maps, reducing RMSD by **18%**.
- Used stochastic masking and geometric augmentation to improve generalization across 30 RNA families.

Unity ML-Agents Robotics Simulation — Unity, RL, OpenCV, Docker, CUDA — Summer 2024
- Created RL environment for mobile robots navigating dynamic obstacles using Unity Physics and NavMesh.
- Trained PPO agents with reward shaping, achieving **90% collision-free success** across **5** maps.
- Enhanced perception with temporal frame stacking and raycast awareness, cutting training episodes by **35%**.

Mind-Controlled Drone — TensorFlow, Python, SciPy, NumPy — Fall 2023
- Designed a brain–computer interface enabling drone control from EEG signals using a Muse headband.
- Built EEG preprocessing pipeline (Butterworth filter, FFT, artifact rejection) and real-time socket-based control.
- Achieved **76% offline** and **93% real-time** command classification accuracy.

Technical Skills

Languages: Python, C, C++, C#, Java, SQL, R, Bash, Go, Rust
Frameworks & Libraries: PyTorch, TensorFlow, B BeautifulSoup, JAX, Scikit-learn, XGBoost, LightGBM, OpenCV, NumPy, Pandas, Flask, FastAPI, Spring, MLpack, HuggingFace Transformers, Open3D, Selenium, CatBoost
Tools & Platforms: Git, Docker, Kubernetes, Linux, ROS, Arduino, CUDA, Unity, Unreal Engine, ONNX, PostgreSQL, MongoDB, Redis, Supabase, AWS, Azure, GCP, Airflow, Databricks, MLflow, Jupyter Notebook, VS Code