Erik Bloomquist

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Education

Bachelor of Science in Electrical Engineering Spring 2026
Minor: Economics
University of Florida *GPA: 3.98/4*

Work Experience

Undergraduate Teaching Assistant| *UF ECE Dept.* August 2024 - Present

- Assists Dr. Catia Silva in operation of Fundamentals of Machine Learning
- Course topics include Bayesian Learning, Generative Models, Clustering, Discriminative Classification, Dimensionality Reduction, Manifold Learning, Neural Networks, and Deep Learning

Undergraduate Teaching Assistant | *UF Engineering Education Dept.* May 2023 - July 2024

- Assisted Dr. Lilianny Virguez in operation of Elements of Electrical Engineering
- Course topics include AC & DC circuit analysis, Arduino projects, and basic C++ programming

Student Assistant- Database | *UF College of Dentistry* May 2023 - August 2023

- Worked with the UF College of Dentistry to migrate 5000 medical records into the College's database

Research Experience

Evaluating Deep Learning and Feature-Based Models for ECG Signal Anomaly Detection* | *Dr. Catia Silva*

- Leads a project on seeking interpretable decision boundaries of feature-based anomaly detection models
- Work in progress; Supported by grant funding from UF Center for Undergraduate Research's AI Scholars Program

Literature Review: Adversarial Machine Learning* | *Dr. Damon Woodard*

- Surveys attack and defense mechanisms for machine learning systems
- Work in progress; Work supported by the Florida Institute for National Security (FINS)

From Black-Box to Glass-Box Models: Towards Explainability in Reinforcement Learning | *Dr. Damon Woodard*

- Trained common RL algorithms (DQN, PPO) on benchmark environments (Cart Pole, Mountain Car, Lunar Lander)
- Examined decision boundaries and extracted interpretable policy representations

Awards

Dr. Joseph S. Rosko Award | *Scholarship* Fall 2025

- Awarded $5000 scholarship for being a top student in the ECE department

AI Scholars Program | *Research Funding* Fall 2025

- Awarded $1750 in grant funding to research interpretability of feature-based and deep learning models for ECG signal anomaly detection

Florida Institute for National Security (FINS) Talent Pipeline | *Fellowship* Spring 2024

- Awarded $5000 fellowship to perform research at the intersection of AI and national security

University Honors Program | *Recognition* Fall 2022

- Admitted to UF's University Honors Program, recognizing top incoming undergraduate students

Presentations

2025 Spring Undergraduate Research Symposium* | *Poster Presentation (in progress)* Spring 2025

- Will present my AI Scholars Program work on interpretable decision boundaries in ECG anomaly detection models

2024 Spring Undergraduate Research Symposium | *Poster Presentation* Spring 2024

- Presented my work with FINS on explainability in reinforcement learning

Relevant Coursework

Machine Learning Mathematics
Formal Methods for Robotics & AI
Stochastic Methods
Digital Signal Processing
Analog Circuitry
Applied Machine Learning Systems
Data Science
Communication Systems
Biomedical Image Analysis
Electrophysics

Leadership & Involvement

Founder and President | *UF Machine Learning Studio* Fall 2025 - Present

– Created a student organization to host beginner-friendly machine learning workshops and design teams

Undergraduate Curriculum Chair | *Eta Kappa Nu (HKN) Epsilon Sigma* Spring 2024 - Present

– Represents IEEE's honor society at faculty curriculum committee meetings

– Selected to serve on the ECE student panel, answering curriculum-related questions from underclassmen in electrical and computer engineering