Nolan Groves

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https://github.com/nolangroves/Portfolio

Software engineer with an MS in Robotics from ASU and professional experience building end-to-end ML pipelines. Career spans data engineering, physics research instrumentation, and simulation-based RL – comfortable operating across technical disciplines.

Education

Master's Degree in Robotics and Autonomous Systems *2023 – 2026*
Arizona State University, Tempe, AZ · 4.0

Bachelor's Degree in Physics, CS Minor *2017 – 2021*
Texas State University, San Marcos, TX · 3.97

Experience

Data Analyst *June 2022 – June 2023*
Affinaquest, Remote
Developed software implementing a complete pipeline to operate on client data, from raw input through selecting and training machine learning models.
- Implemented machine learning algorithms including XGBoost, Random Forest, and Logistic Regression within predictive analytics using Python technologies such as scikit-learn, NumPy, and Pandas.
- Utilized extensive client databases for a classification problem, forecasting potential new donors from historical data.

Instructor *Sep 2021 – Jun 2022*
Mathnasium, Austin, TX
Helped K–12 math students through a tailored curriculum and one-on-one tutoring.

Lab Technician *May 2019 – May 2021*
Texas State University, San Marcos, TX
Worked under Dr. Mark Wistey in Molecular Beam Epitaxy (MBE) research. Conducted guided research applying machine learning to analyze spectra.
- Modified code to allow digital reading of unsupported sensors through Molly control software; debugged and implemented various other hardware control interfaces.
- Helped design and build water chiller units with digital controls.
- Oversaw transfer of control systems to new hardware and operating systems.
- Performed general maintenance and operation on ultra-clean, ultra-high vacuum, high voltage, and arsenic-contaminated systems.

Learning Assistant / Lab Instructor *Aug 2019 – May 2021*
Texas State University, San Marcos, TX
Worked with faculty to teach introductory Electricity & Magnetism and the Advanced Lab course.
- Taught fundamentals of electronic and mechanical systems through independent projects including a high-vacuum system and an automated weather station.
- Staffed the physics help center to assist students across a variety of courses.

Technical Skills

Languages	Python, Java, JavaScript, C++
Libraries	Pandas, PyTorch, OpenCV, scikit-learn, NumPy, MuJoCo
Tools	Linux, Git, Excel
Fabrication	CNC mill, Waterjet, Wood shop, Welding, Laser cutter

Notable Coursework

Master's Thesis	*Transformer-based policies for multi-agent reinforcement learning in simulation*
Multi-Robot Systems	*Numerous different control theories for managing multiple robots*
Modeling and Control of Robots	*Forward and reverse kinematic modeling of robots*
Machine Vision	*Foundational theory of machine vision and projects using OpenCV*
Artificial Intelligence	*Classical AI agent theory and algorithms*