



Mohammad Sina Heidaripour

Electrical Engineering Student (Control Engineering)

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Machine Learning • Reinforcement Learning • Intelligent Control

Undergraduate control engineering student focused on dynamic modeling and learning-based control, benchmarking modern methods against classical controllers. Long-term goal: guidance, navigation and control of aerospace and space systems.

Education

Bachelor's Degree in Electrical Engineering (Control Engineering)

2022 – Present

Ferdowsi University of Mashhad, Iran

Undergraduate program centred on control systems, dynamic modeling and artificial intelligence, applied through hands-on simulation and machine-learning projects.

Projects

01 Reinforcement Learning-Based Control of an Inverted Pendulum

Designed a mathematical model of an inverted pendulum in MATLAB/Simulink. Implemented and benchmarked a DQN-based Reinforcement Learning controller against a classical PID controller in Python to evaluate dynamic stabilization.

02 Human Activity Recognition using Transformer Networks (From Scratch)

Implemented a custom Transformer architecture from scratch using raw PyTorch tensor operations, achieving robust sensor-based activity classification on the PAMAP2 dataset.

03 Classical Machine Learning Implementations

Engineered and evaluated diverse predictive models including Linear/Logistic Regression, SVM, and KNN using Scikit-Learn to solve fundamental classification and regression challenges.

Core Technical Skills

- **Programming Languages:** Python, C++
- **Deep Learning & Architectures:** PyTorch, MLP, CNN, RNN, LSTM, Transformers
- **Scientific Computing & Machine Learning:** NumPy, SciPy, Matplotlib, Scikit-Learn
- **Simulation & Modeling:** MATLAB, Simulink
- **Software Engineering:** Object-Oriented Programming (OOP), Git, GitHub
- **Operating Systems:** Linux
- **Language:** English (Intermediate)