ARYA RASHIDINEJAD MEIBODI

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EDUCATION

Master of Applied Science in Mechatronics Engineering Sep 2022 – Sep 2025
University of Tehran

- Thesis topic: Optimal Regulation of Nonlinear Systems using SDRE technique and Integral Reinforcement Learning
- Supervisor: Dr. Khalil Alipour and Bahram Tarvirdizadeh
- Previous thesis topic: Implementation of RL algorithms on cognitive games
- Previous supervisor: Dr. Manouchehr Moradisabzevar

Bachelor of Applied Science in Electrical Engineering Sep 2016 – Jul 2025
University of Tehran

- GPA: 3.55/4.0
- Thesis topic: Background Detection using Mask RCNN
- Supervisor: Dr. Omid Fatemi

PAPERS UNDER REVIEW

Optimal Regulation of Nonlinear Systems using SDRE technique and Integral Reinforcement Learning

Soft Robot Regulation using completely model-free Reinforcement Learning

ACADEMIC PROJECTS

Nonlinear Regulation using SDRE and Integral Reinforcement Learning Sep. 2024 – Sep. 2025

Enhanced the State-Dependent Riccati Equation (SDRE) technique by incorporating Integral Reinforcement Learning (IRL), developed a practical control approach, and provided asymptotic stability proof and ROA

Control of Magnetic Catheter using Deep RL Sep. 2023 – Jan. 2024

Developed deep reinforcement learning approaches (DQN and Actor-Critic) to control a soft robotic catheter using only input and output data and interaction with the environment

Bicycle Robot Control System in MATLAB Sep. 2022 – Jan. 2023

Developed PID, state-feedback, and LQR controllers for a bicycle robot in MATLAB, analyzing the trade-offs and performance of each method, and assessing the domain of attraction and comparison with nonlinear approaches

Background Replacement with R-CNN Sep. 2020 – Sep. 2021

Implemented a region-based CNN to remove image backgrounds and insert chosen backdrops for the bachelor's project.

TEACHING EXPERIENCE

Teaching Assistantship of Advanced Automatic Control Sep. 2023 – Feb. 2024
University of Tehran

Teaching Assistantship of Operations Research Sep. 2021 – Jan. 2022
University of Tehran

PRACTICAL SKILLS

Control & MATLAB

- Implement linear control strategies in MATLAB/Simulink: state feedback, LQR, PID (design, tuning, simulation).
- Implement nonlinear control strategies in MATLAB/Simulink: Sliding-Mode Control (SMC), Backstepping, and Feedback Linearization (modeling, stability analysis).

Machine Learning and Reinforcement Learning

- Implement ML and RL methods with hands-on experience across Linux environments. Proficient in Python, NumPy, Pandas, scikit-learn, PyTorch, and TensorFlow; utilize OpenAI Gym/Stable-Baselines for RL experimentation; construct data pipelines and execute experiments in shell/virtual environments.

Algorithms and programming

- Proficient in designing and implementing data structures and algorithms, with strong problem-solving skills demonstrated through optimized solutions in competitive programming and academic projects. Expertise in object-oriented programming, leveraging principles like encapsulation, inheritance, and polymorphism to build robust, scalable applications in languages such as Python and C++

HONORS & AWARDS

Secured the 245th rank in the 2016 Iranian Universities Entrance Examination out of approximately 300,000 participants.

REFERENCES

- Professor Khalil Alipour
  University of Tehran, Department of Mechatronics Engineering
  Email: k.alipour@ut.ac.ir

- Professor Bahram Tarvirdizadeh
  University of Tehran, Department of Mechatronics Engineering
  Email: bahram@ut.ac.ir

- Professor Omid Fatemi
  University of Tehran, Department of Electrical and Computer Engineering
  Email: ofatemi@ut.ac.ir