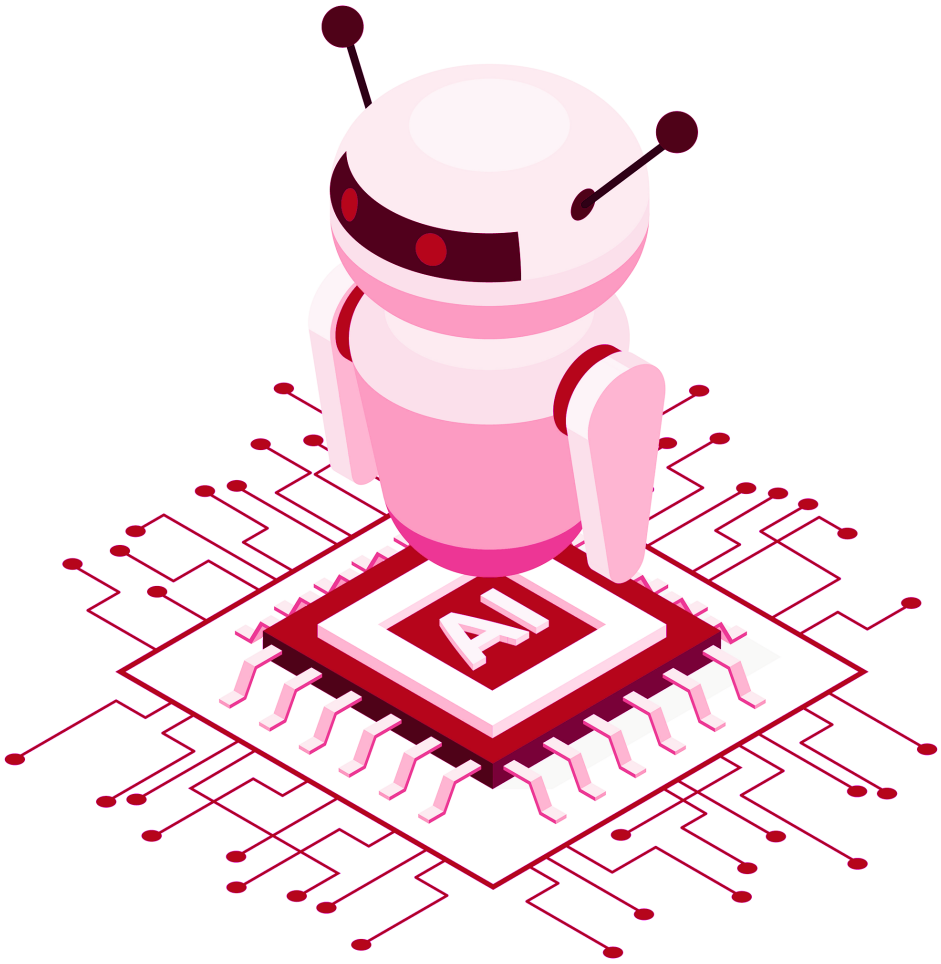

Deep Reinforcement Learning

Professor Mohammad Hossein Rohban

Homework 1:

Introduction to RL

By:

[Parsa Ghezelbash]

[401110437]

RIML

Deep RL Course

Spring 2025

Contents

Grading

The grading will be based on the following criteria, with a total of 100 points:

Task	Points
Task 1: Solving Predefined Environments	45
Task 2: Creating Custom Environments	45
Clarity and Quality of Code	5
Clarity and Quality of Report	5
Bonus 1: Writing a wrapper for a known env	10
Bonus 2: Implementing pygame env	20
Bonus 3: Writing your report in Latex	10

Notes:

- Include well-commented code and relevant plots in your notebook.
- Clearly present all comparisons and analyses in your report.
- Ensure reproducibility by specifying all dependencies and configurations.

1 Task 1: Solving Predefined Environments [45-points]

2 Task 2: Creating Custom Environments [45-points]

3 Task 3: Pygame for RL environment [20-points]

References

[1] R. Sutton and A. Barto, *Reinforcement Learning: An Introduction*, 2nd Edition, 2020. Available online: http://incompleteideas.net/book/the-book-2nd.html

[2] A. Raffin et al., "Stable Baselines3: Reliable Reinforcement Learning Implementations," GitHub Repository, 2020. Available: https://github.com/DLR-RM/stable-baselines3.

[3] Gymnasium Documentation. Available: https://gymnasium.farama.org/.

[4] Pygame Documentation. Available: https://www.pygame.org/docs/.

[5] CS 285: Deep Reinforcement Learning, UC Berkeley, Pieter Abbeel. Course material available: http://rail.eecs.berkeley.edu/deeprlcourse/.

[6] Cover image designed by freepik