ESE-680-005 Reinforcement Learning

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1 Organization

- Instructors: Miguel and Santiago
- TAs: Clark, Kate, Arbaaz (monday 5-7 GRASP conf room, wednesday 9-11 452C walnut 3401, Arbaaz on demand)
- Homeworks: 50%, groups of 2 students
- Midterm: Oct 17th (MDP, policy gradient)
- Take-home final: Dec 5th: Theoretical, implementation
- Textbook: "Reinforcement Learning: an introduction" by Sutton and Barto
- Textbook: "Algorithms for Reinforcement Learning" Csaba Szepesvari, https://sites.ualberta.ca/ szepesva/RLBook.html

2 Lecture 1: Overview

2.1 What is Reinforcement Learning (RL)

A **Model-free** framework to formalize **sequential** decision making. We have an agent at time t that interacts in the environment:

- Actions $A_t \in \mathcal{A}(s)$ (possibly state dependent)
- States $S_t \in \mathcal{S}$
- Reward R_t

Our goal is to learn the best policy $\pi^*(s)$ to find the best action in the world.