Course Introduction: Deep Reinforcement Learning

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Class Information

People

- Instructor: Insoon Yang
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Logistics

- 12 hours lecture: theory, algorithm, some applications
- 6 hours practice session: coding, experiments, more applications

Pre-requisite

- Basics of probability, calculus and linear algebra
- Basics of deep learning
  (learned in the previous several weeks)

What We Will Cover

- Day 1: RL and MDP
  - Overview of RL and deep RL
  - Markov decision processes (MDP)
- Day 1: Value-based methods
  - Q-Learning
  - Deep Q-Networks (DQN), Double DQN
- Day 2: Policy-based methods
  - Policy gradient, Actor-critic
  - Deep deterministic policy gradient (DDPG)
- Day 3: Advanced methods
  - Trust region policy optimization (TRPO)
  - Maximum entropy RL
  - Soft actor-critic (SAC)

Questions

- Any questions are welcome during classes!
- Feel free to email the instructor and the TAs
- Can provide additional materials about more advanced topics