

국민대학교 KPSC & AIM 스터디 – 강화학습을 이용한 체스 AI 만들기

Introduction

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강사 소개

국민대학교 KPSC & AIM 스터디
Introduction

- 옥찬호 (Chris Ohk)
 - (현) 42dot Embedded Software Engineer
 - (전) EJM Tech Lead
 - (전) Momenti Engine Engineer
 - (전) Nexon Korea Game Programmer
 - Microsoft Developer Technologies MVP
 - C++ Korea Founder & Administrator
 - Reinforcement Learning KR Administrator
 - IT 전문서 집필 및 번역 다수

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- 주 교재

- 파이썬과 케라스로 배우는 강화학습 (위키북스, 2020)
- Reinforcement Learning, 2nd Edition (Bradford Books, 2018)
- Deep Reinforcement Learning Hands-On, 3rd Edition (Packt, 2024)

- 부 교재

- 수학으로 풀어보는 강화학습 원리와 알고리즘 (위키북스, 2021)
- Grokking Deep Reinforcement Learning (Manning, 2020)
- Reinforcement Learning (O'Reilly Media, 2020)

- 강의 요일 및 시간
 - 요일 : 월요일 오후 7시 시작
 - 시간 : 보통 2시간, 최대 2시간 30분
- 참고 사항
 - 온라인 + 오프라인 강의 (오프라인 강의는 월 1~2회 진행)
 - 진행자의 개인 사정에 따라 강의 일정이 변경될 수 있음

- Phase 1 : Introduction to Reinforcement Learning (2025 Spring)
- Phase 2 : Reinforcement Learning Paper Review (2025 Summer)
- Phase 3 : Making a Simple Chess AI (2025 Fall)

- Week 1
 - What is Reinforcement Learning?
 - MDP (Markov Decision Process)
 - State
 - Action
 - Reward Function
 - State Transition Probability
 - Discount Factor
 - Policy
 - Value Function and Q-Function

- Week 2
 - Bellman Equation
 - Bellman Expectation Equation
 - Bellman Optimality Equation
 - Dynamic Programming
 - Policy Iteration
 - Value Iteration
 - Exercise #1
 - Policy Iteration
 - Value Iteration

- Week 3
 - Policy Evaluation
 - Monte-Carlo Prediction
 - Temporal-Difference Prediction
 - SARSA
 - Q-Learning
 - Exercise #2
 - Monte-Carlo
 - SARSA
 - Q-Learning

- Week 4
 - Assignment #1 (Maze)
 - SARSA
 - Q-Learning
 - Assignment #2 (Windy Gridworld)
 - SARSA
 - Q-Learning

- Week 5
 - Deep Learning with PyTorch (Python, C++, Rust)
 - What is PyTorch?
 - PyTorch Tutorial

- Week 6
 - Deep SARSA
 - Policy Gradient
 - Policy-based Reinforcement Learning
 - REINFORCE
 - Exercise #3
 - Deep SARSA
 - REINFORCE

- Week 7
 - DQN (Deep Q-Network)
 - Actor-Critic
 - Exercise #4
 - DQN
 - Actor-Critic

- Week 8
 - Assignment #3 (LunarLander-v2)
 - DQN
 - Actor-Critic
 - Assignment #4 (Breakout)
 - DQN
 - A3C (Asynchronous Advantage Actor-Critic)

감사합니다.

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