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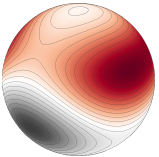
IWR
Interdisciplinary Center
for Scientific Computing



Organizational Meeting
Seminar: Mathematical Machine Learning

Summer Semester 2024

Introduction

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General

- Language: English
- Intended for Master students

Concept of the Seminar (1)

- We will be working with Sutton and Barto's "Reinforcement learning: An introduction" (see [1]).
- Today, you choose a chapter.
- In preparation, everyone reads from the beginning up until including chapter 2.

Concept of the Seminar (2)

- Read and analyze your chapter.
- Prepare a presentation on the topic of the chapter.
- Find related material or implementations and mention or add it if appropriate.
- One presentation per meeting (approx. 1 h for the presentation).
- Questions and discussion after the presentation.

Grading

- The grade is based on the presentation and the discussion thereafter.

Regular Meetings

- Starting in KW19, we will meet weekly for the presentations. Which of the following dates suits the most participants.

Table: Potential weekly meeting dates

Date	Vote	Date	Vote	Date	Vote
Mo 14:00		Mo 16:00		Mo 18:00	
Tu 14:00		Tu 16:00		Tu 18:00	
				We 18:00	
Th 14:00				Th 18:00	

Assigning Presentations

Table: Presentation Details

Number	Week	Chapter	Pages
1	KW19	C3 - Finite Markov Decision Processes	26
2	KW20	C4 - Dynamic Programming	18
3	KW21	C5 - Monte Carlo Methods	28
4	KW22	C6 - Temporal Difference Learning	22
5	KW23	C7 - n-step Bootstrapping	18
6	KW24	C8 - Planning and Learning with Tabular Methods	36
7	KW25	C9 - On-policy Prediction with Approximation	48
8	KW26	C10 - On-policy Control with Approximation	15
9	KW27	C12 - Eligibility Traces	34
10	KW28	C13 - Policy Gradient Methods	18

What's next?

- Before the first meeting, read chapters 1 and 2 of the book.
- Resources are online: https://scoop.iwr.uni-heidelberg.de/teaching/2024ss/seminar-mathematical-machine-learning/
- These slides will be shared on the website.

Questions?