

VU Machine Learning

Winter Term 2021

Exercise 3.3

Reinforcement Learning for Tic-Tac-Toe

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This is one of possible topics for exercise 3. See other possible topics in tuwel. You have to select only one topic for exercise 3

Reinforcement Learning: An Introduction (textbook), R. Sutton and A. Barto:

Consider the familiar child's game of tic-tac-toe. Two players take turns playing on a three-by-three board. One player plays Xs and the other Os until one player wins by placing three marks in a row, horizontally, vertically, or diagonally, as the X player has in the game shown to the right. If the board fills up with neither player getting three in a row, then the game is a draw.

X	O	O
O	X	X
		X

- Implement a reinforcement learning player that learns to play the tic-tac-toe game
- You can implemented any reinforcement learning method
- The algorithm should be implemented from scratch (please do not use source code from other sources)

- Your implementation
- Presentation slides with this structure
 - Description of used RL method
 - Main information for your implementation
 - Discussion/Conclusions
- No report needed for this assignment
- Individual discussion with each group



Presentation/Discussion of assignment

- Discussion of code
- Implementation issues
- Demonstration of RL player