CS-C1000 - Introduction to Artificial Intelligence, 02.03.2021-09.04.2021
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CS-C1000 - Introduction to Artificial Intelligence, 02.03.2021-09.04.2021

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Started on	Saturday, 27 March 2021, 1:48 PM
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Completed on	Saturday, 27 March 2021, 5:52 PM
Time taken	4 hours 4 mins
Grade	**9.00** out of 10.00 (**90**%)

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Question **1**

Flag question Mark 1.00 out of 1.00 Correct

What is Reinforcement Learning typically used for?

Select one:
- ● a. Applications where it is hard to hand-tailor the behavior of the algorithm for every possible condition it might stumble upon. ✓
- ○ b. Applications where you have many robots.
- ○ c. Applications where you have a lot of labeled training data.

Your answer is correct.

Typical use cases where the task and environment are complicated, but some reward (feedback) can be formulated. For example, learning to walk, drive, grasp things, or play games.

The correct answer is: Applications where it is hard to hand-tailor the behavior of the algorithm for every possible condition it might stumble upon.

Question **2**

Flag question Mark 1.00 out of 1.00 Correct

What are the basic building blocks for RL algorithms?

Select one:
- ○ a. The method typically consists of states that send out rewards to the environment.
- ○ b. The reward typically consists of a method that states the environment is an agent.
- ● c. The method typically consists of an agent that can perform actions and observes back the current state of the environment. ✓

Your answer is correct.

The method typically consists of an 'agent' that can interact with the environment by actions, and gets back observations of the current state of the system and possibly some rewards.

The correct answer is: The method typically consists of an agent that can perform actions and observes back the current state of the environment.

Question **3**

Flag question Mark 1.00 out of 1.00 Correct

What is a 'policy'?

Select one:
- ○ a. It is the training schedule of the algorithm.
- ● b. The policy tells the agent what to do in each possible state. This is what is being learned. ✓
- ○ c. It comes from the legislation that regulates what artificial intelligence is allowed to do.

Your answer is correct.

The learned policy is a state-dependent map of what actions to take in each state.

The correct answer is: The policy tells the agent what to do in each possible state. This is what is being learned.

Question **4**

Flag question Mark 1.00 out of 1.00 Correct

What is the difference between exploration and exploitation?

Select one:
- ○ a. Doing unsupervised learning vs. doing supervised learning.
- ○ b. Learning fast vs. slow.
- ● c. Trying out new things vs. doing things you already know. ✓

Your answer is correct.

Exploration means that the algorithm tries new things in order to determine what would be sensible to do, while exploitation refers to leveraging the already learned skills.

The correct answer is: Trying out new things vs. doing things you already know.

Question **5**

Flag question Mark 1.00 out of 1.00 Correct

What is the point in deep reinforcement learning?

Select one:
- ○ a. Stacking many layers of agents together that together make the decisions.
- ○ b. Using deep learning instead of reinforcement learning.
- ● c. Keeping human/expert hand-tailoring of the inputs at minimum and letting the system learn in an end-to-end fashion. ✓

Your answer is correct.

Deep reinforcement learning is also know as end-to-end reinforcement learning. It refers to building systems where the observations for the RL algorithm are just the raw sensor outputs (like the raw camera image stream) and the method also needs to learn to make sense of it.

The correct answer is: Keeping human/expert hand-tailoring of the inputs at minimum and letting the system learn in an end-to-end fashion.

Question **6**

Flag question Mark 1.00 out of 1.00 Correct

Why are model-based RL methods interesting?

Select one:
- ● a. In model-based RL, the algorithm can leverage a model, which speeds up learning. ✓
- ○ b. In model-based RL, reinforcement learning is replaced with a deep learning model.
- ○ c. In model-based RL, the algorithm does not learn by trial and error, but from labeled samples.

Your answer is correct.

In model-based reinforcement learning, prior information about sensible choices are included in the form of a model. This can speed up the training as the method does not have to try 'unnecessary' things, but only try things enough many times to calibrate the model to the observations.

The correct answer is: In model-based RL, the algorithm can leverage a model, which speeds up learning.

Question **7**

Flag question Mark 1.00 out of 1.00 Correct

What is inverse reinforcement learning?

Select one:
- ● a. In inverse RL, the algorithm tries to deduce the unknown reward function from samples of example behaviour. ✓
- ○ b. In inverse RL, the agent tries to understand why it is learning.
- ○ c. In inverse RL, the reinforcement learning is done backwards, starting from the failure (losing the game, the robot falling over, etc.) and working towards the reason why this happened.

Your answer is correct.

In inverse reinforcement learning, no reward function is given and it is instead inferred from a given set of example behaviour samples.

The correct answer is: In inverse RL, the algorithm tries to deduce the unknown reward function from samples of example behaviour.

Question **8**

Flag question Mark 1.00 out of 1.00 Correct

In Janne Pulkkinen's guest lecture, he mentioned KelaLab. What is it?

- ● a. It is an innovation unit where they try out different ideas. ✓
- ○ b. It is something they are planning to set up in the future.
- ○ c. It is a marketing stunt that is only active in social media.

Your answer is correct.

KelaLab is the innovation unit at Kela, where they have the possibility to do research in more advanced methods.

The correct answer is:
It is an innovation unit where they try out different ideas.

Question **9**

Flag question Mark 0.00 out of 1.00 Incorrect

How did Janne Pulkkinen describe the attitude towards AI and how these things have been received at Kela?

- ● a. There had been a lot of suspicions inside the organization in the beginning. ✗
- ○ b. The attitude has been positive, sometimes even with too high expectations.
- ○ c. People have been indifferent.

Your answer is incorrect.

He mentioned that AI methods had been received with an open mind / positively. Sometimes even with too high expectations.

The correct answer is:
The attitude has been positive, sometimes even with too high expectations.

Question **10**

Flag question Mark 1.00 out of 1.00 Correct

What was discussed about Fraud Detection?

- ○ a. Fraud detection is not a part of the things they are interested in.
- ○ b. Fraud detection is a top secret topic and he cannot talk about it at all.
- ● c. Fraud detection is something they do at Kela. ✓

Your answer is correct.

Janne mentioned that they do fraud detection at Kela, but that was not included in his slides for some reason. He also mentioned that it is a slightly more sensitive topic.

The correct answer is:
Fraud detection is something they do at Kela.

Finish review

◄ Guest: Janne Pulkkinen (video)
Lecture 5 (slides) ►

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Binh Nguyen (Log out)