Lesson 3 Learning Process

3.1 Introduction

AI learning processes focused on processing a collection of input-output pairs for a specific function and predict the outputs for new inputs. Most of the artificial intelligence (AI) basic literature identifies two main groups of learning models: supervised and unsupervised.

3.2 Error-correction learning

Error-Correction Learning, used with supervised learning, is the technique of comparing the system output to the desired output value, and using that error to direct the training.

3.3 Hebb learning

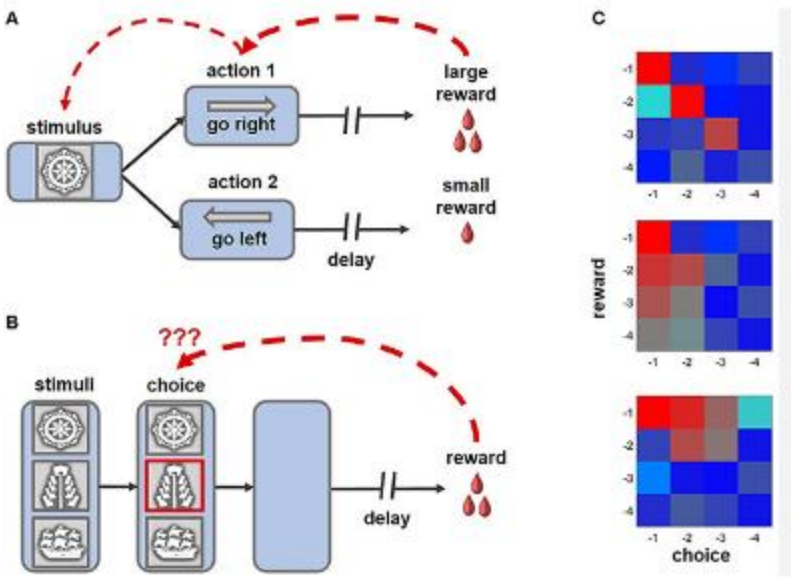
Hebbian learning is a form of activity-dependent synaptic plasticity where correlated activation of pre- and postsynaptic neurons leads to the strengthening of the connection between the two neurons.

3.4 Competitive learning

A Competitive learning is an artificial neural network learning process where different neurons or processing elements compete on who is allowed to learn to represent the current input

3.5 Credit-assignment problem

In naturalistic multi-cue and multi-step learning tasks, where outcomes of behavior are delayed in time, discovering which choices are responsible for rewards can present a challenge, known as the credit assignment problem.



3.6 Supervised learning

Supervised learning, also known as supervised machine learning, is a subcategory of machine learning and artificial intelligence. It is defined by its use of labeled datasets to train algorithms that to classify data or predict outcomes accurately.

3.7 Reinforcement learning

Reinforcement learning is a machine learning training method based on rewarding desired behaviors and/or punishing undesired ones. In general, a reinforcement learning agent is able to perceive and interpret its environment, take actions and learn through trial and error.

3.8 Unsupervised learning

Unsupervised learning, also known as unsupervised machine learning, uses machine learning algorithms to analyze and cluster unlabeled datasets. These algorithms discover hidden patterns or data groupings without the need for human intervention.

3.9 Lesson 3 Questions

1. Why is it important to learn about the learning process?