Module 6 Glossary: Introduction to Reinforcement Learning with Keras

Welcome! This alphabetized glossary contains many terms used in this course. Understanding these terms is essential when working in the industry, participating in user groups, and participating in other certificate programs.

Term	Definition
alpha	The learning rate that determines how much newly acquired information influences the update of the current value or policy.
Bellman equation	A necessary condition for optimality associated with the mathematical optimization method known as dynamic programming. It is named after Richard E. Bellman.
Deep Q-networks (DQNs)	An extension of Q-learning that uses deep neural networks to approximate the Q-value function. It addresses the limitation using a neural network to estimate the Q-values, allowing the algorithm to scale to environments with large or continuous state spaces.
epsilon	The exploration rate that controls the probability of choosing a random action instead of the best-known action to encourage exploration of the environment.
gamma	The discount factor determines the importance of future rewards relative to immediate rewards in the value function.
Hyperparameters	The settings in machine learning models that are set before training and control the learning process, such as learning rate, batch size, and the number of layers.
OpenAI's Gym	An open-source Python toolkit that provides developers with a simulated environment to develop and test reinforcement learning agents for deep learning models.
Q-learning	An off-policy algorithm that seeks to learn the value of taking a specific action in a given state and aims to find the optimal action-selection policy for an agent.
Q-network	A neural network used to approximate the Q-value function, mapping state-action pairs to their expected future rewards.
Q-table	A lookup table where each entry estimates the cumulative reward obtained by taking a given action in a given state and following the optimal policy afterward.
Q-value	A function that estimates the expected future rewards for taking a specific action in a given state and following the optimal policy thereafter.
Reinforcement learning	A powerful paradigm in machine learning that focuses on training agents to make sequences of decisions by maximizing a notion of cumulative reward.
Supervised learning	A category of machine learning technology that uses labeled data sets to train algorithms to predict outcomes and recognize patterns.
Unsupervised learning	A category of machine learning technology that uses algorithms to analyze and cluster unlabeled data sets.

Skills Network