# Artificial Intelligence (AI)

A-Level Computer Science · Vocabulary in context

| Word | Example |
|---|---|
| **artificial intelligence** /ˌɑːtɪˈfɪʃl ɪnˈtelɪdʒəns/ | **Artificial intelligence** lets computers do tasks that need thinking. |
| **machine learning** /məˈʃiːn ˈlɜːnɪŋ/ | **Machine learning** lets a computer learn from examples. |
| **deep learning** /diːp ˈlɜːnɪŋ/ | **Deep learning** can recognise faces. |
| **neural networks** /ˈnjuːrəl ˈnetwɜːks/ | **Neural networks** are made of many connected units. |
| **humanoid robot** /ˈhjuːmənɔɪd ˈrəʊbɒt/ | A **humanoid robot** has arms, legs and a head. |
| **graph** /græf/ | A **graph** has nodes joined by edges. |
| **nodes** /nəʊdz/ | The cities are the **nodes** of the graph. |
| **edges** /ˈedʒɪz/ | The roads are the **edges** of the graph. |
| **minimax** /ˈmɪnɪmæks/ | **Minimax** helps a computer choose the best move in a game. |
| **semantic network** /səˈmæntɪk ˈnetwɜːk/ | A **semantic network** shows how ideas link. |
| **knowledge graph** /ˈnɒlɪdʒ græf/ | A **knowledge graph** stores facts as linked nodes. |
| **breadth-first search** /bredθ fɜːst sɜːtʃ/ | **Breadth-first search** visits all nearby nodes first. |



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| **depth-first search** /depθ fɜːst sɜːtʃ/ | **Depth-first search** goes as deep as it can first. |
| **weight** /weɪt/ | The **weight** on the edge is the distance. |
| **heuristic** /hjuːˈrɪstɪk/ | A **heuristic** is a good guess that saves time. |
| **labels** /ˈleɪblz/ | The photos have **labels** such as “cat” and “dog”. ”cat” ”dog” |
| **artificial neuron** /ˌɑːtɪˈfɪʃl ˈnjuːrɒn/ | An **artificial neuron** adds its inputs and gives one output. |
| **bias term** /ˈbaɪəs tɜːm/ | The **bias term** moves the output up or down. |
| **activation function** /ˌæktɪˈveɪʃn ˈfʌŋkʃn/ | The **activation function** decides the neuron’s output. |
| **hidden layers** /ˈhɪdn ˈleɪəz/ | **Hidden layers** sit between the input and the output. |
| **deep neural network** /diːp ˈnjuːrəl ˈnetwɜːk/ | A **deep neural network** has many hidden layers. |
| **image recognition** /ˈɪmɪdʒ ˌrekəgˈnɪʃn/ | **Image recognition** finds faces in photos. |
| **speech recognition** /spiːtʃ ˌrekəgˈnɪʃn/ | **Speech recognition** turns your voice into text. |
| **machine translation** /məˈʃiːn trænˈsleɪʃn/ | **Machine translation** turns English into Chinese. |
| **reinforcement learning** /ˌriːɪnˈfɔːsmənt ˈlɜːnɪŋ/ | In **reinforcement learning**, the program learns from rewards. |

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| **supervised learning** /ˈsuːpəvaɪzd ˈlɜːnɪŋ/ | In **supervised learning**, the training data has labels. |
| **classification** /ˌklæsɪfɪˈkeɪʃn/ | **Classification** sorts emails into spam and not spam. |
| **regression** /rɪˈgreʃn/ | **Regression** predicts a number, such as a house price. |
| **unsupervised learning** /ʌnˈsuːpəvaɪzd ˈlɜːnɪŋ/ | In **unsupervised learning**, the data has no labels. |
| **cluster** /ˈklʌstə/ | Similar customers form a **cluster**. |
| **training data** /ˈtreɪnɪŋ ˈdeɪtə/ | The program learns from **training data**. |
| **learning rate** /ˈlɜːnɪŋ reɪt/ | A small **learning rate** means small steps. |
| **self-driving car** /self ˈdraɪvɪŋ kɑː/ | A **self-driving car** uses cameras and sensors. |
| **agent** /ˈeɪdʒənt/ | The **agent** learns by trying actions. |
| **reward** /rɪˈwɔːd/ | The program gets a **reward** for a good move. |
| **policy** /ˈpɒlɪsi/ | The **policy** tells the agent what to do. |
| **lidar** /ˈlaɪdɑː/ | **Lidar** measures distance with laser light. |
| **backpropagation** /ˌbækprəpəˈgeɪʃn/ | **Backpropagation** changes the weights to reduce the error. |
| **gradient descent** /ˈgreɪdɪənt dɪˈsent/ | **Gradient descent** takes small steps downhill to reduce the error. |



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| **loss function** /lɒs ˈfʌŋkʃn/ | The **loss function** measures how wrong the answer is. |
| **epochs** /ˈiːpɒks/ | The network trained for ten **epochs**. |
| **linear regression** /ˈlɪnɪə rɪˈgreʃn/ | **Linear regression** fits a straight line to the data. |
| **optical character recognition** /ˈɒptɪkl ˈkærɪktə ˌrekəgˈnɪʃn/ | **Optical character recognition** reads text from a photo. |
| **text-to-speech** /tekst tə spiːtʃ/ | **Text-to-speech** reads the words aloud. |