

Interview Questions

Define semantic processing and list the different methods involved in it.

Semantic processing helps machines capture the meaning of the natural language. It is probably the most challenging area in the field of NLP, partly because the concept of 'meaning' itself is quite wide and it is difficult to make machines understand the text the same way in which we do, that is, inferring the intent of a statement and the meanings of ambiguous words, dealing with synonyms, detecting sarcasm, etc.

The different methods of semantic processing are as follows:

1. Knowledge graphs
2. Distributional semantics
3. Topic modelling

What is the difference between semantic and syntactic natural language processing?

Syntactic processing makes machine process grammar from a given corpus of text, whereas semantic processing captures the meaning.

From a technical point of view, grammar is a set of rules that need to be followed while constructing a sentence. However, several sentences are bound by the rules of grammar and yet are gibberish. For example, take a look at the following sentence by Noam Chomsky, an American linguist.

‘Colorless green ideas sleep furiously.’

At the same time, the text data that is generated on a daily basis is not grammatically correct. Hence, semantic processing is necessary.

What are the real-life applications of semantic processing?

1. Chatbots
2. Sentiment classification
3. Fake news detection
4. Information retrieval
5. Recommendation systems

What are the different algorithms used in topic modelling?

1. Latent dirichlet allocation
2. Latent semantic association
3. Non-negative matrix factorisation

What technique is used to compute the distance between 2 vectors in NLP?

Cosine similarity is used to compute the distance between 2 vectors in NLP.

What are the different algorithms in Word2vec? List their similarities and differences.

Continuous Bag of Words and skipgram models are the two algorithms in word2vec.

Similarities: The architecture of neural networks

Differences: The input training data and information flow in the forward pass.