

Natural Language Processing

Modality: Self-Paced Learning

Duration: 48 Hours

SATV Value:

CLC:

NATU:

SUBSCRIPTION: Learn, Master

About this course:

NLP - Natural Language Processing is among the most significant information age technologies. An important part of artificial intelligence is also the comprehension of complex language utterances.

A detailed explanation of NLP and how to use classical machine learning approaches will be offered in this course. Students can discover regarding DSSM - Deep Semantic Models of Similarity (DSSM), Statistical Machine Translation, and their implementations.

Students will also explore in-depth learning methods used in Multimodal Perception Vision-Language and Natural Language Processing.

Course Objective:

- Using DSSM for natural language applications and information retrieval
- Resolve conversion problems and machine translation by utilizing deep learning models
- Use deep learning methods for image visual questions answering and image captioning.
- Understanding of Deep Semantic Models of Similarity

Audience:

Language processing specialist

Prerequisite:

Before taking this course, participants are required to have math and computer programming expertise and basic understanding about machine learning.

Course Outline:

Module 1: Introduction to NLP

- Introduction to Deep Learning
- Classical NLP
- Knowledge Checks
- Assignment

Module 2: Neural Models for Machine Translation and Conversation Generation

- Overview of Conventional Statistical Machine Translation
- Neural Machine Translation
- Neural Conversation Generation
- Knowledge Checks
- Assignment

Module 3: Deep Semantic Similarity Model and Its Applications

- DSSM
- DSSM for Information Retrieval
- DSSM for Entity Ranking
- Knowledge Checks
- Assignment

Module 4: Natural Language Understanding

- Spoken Language Understanding
- Continuous Word Representations
- Neural Knowledge Base Embedding
- KB-based Question Answering
- Knowledge Checks
- Assignment

Module 5: Deep Reinforcement Learning

- Deep Reinforcement Learning Background
- Deep Reinforcement Learning for NLP
- Knowledge Checks
- Assignment

Module 6: Vision-Language Multimodal Intelligence

- Image Captioning
- Visual Question Answering
- Knowledge Checks
- Assignment?