

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Applied Natural Language Processing

Subject Co-ordinator - Prof. Ramaseshan R

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Operations on a Corpus
Lecture 3 - Probability and NLP
Lecture 4 - Vector Space models
Lecture 5 - Sequence Learning
Lecture 6 - Machine Translation
Lecture 7 - Preprocessing
Lecture 8 - Statistical Properties of Words - Part 1
Lecture 9 - Statistical Properties of Words - Part 2
Lecture 10 - Statistical Properties of Words - Part 3
Lecture 11 - Vector Space Models for NLP
Lecture 12 - Document Similarity - Demo, Inverted index, Exercise
Lecture 13 - Vector Representation of words
Lecture 14 - Contextual understanding of text
Lecture 15 - Co-occurrence matrix, n-grams
Lecture 16 - Collocations, Dense word Vectors
Lecture 17 - SVD, Dimensionality reduction, Demo
Lecture 18 - Query Processing
Lecture 19 - Topic Modeling
Lecture 20 - Examples for word prediction
Lecture 21 - Introduction to Probability in the context of NLP
Lecture 22 - Joint and conditional probabilities, independence with examples
Lecture 23 - The definition of probabilistic language model
Lecture 24 - Chain rule and Markov assumption
Lecture 25 - Generative Models
Lecture 26 - Bigram and Trigram Language models - peeking inside the model building
Lecture 27 - Out of vocabulary words and curse of dimensionality
Lecture 28 - Exercise
Lecture 29 - Naive-Bayes, classification

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Lecture 30 - Machine learning, perceptron, linearly separable
Lecture 31 - Linear Models for Claassification
Lecture 32 - Biological Neural Network
Lecture 33 - Perceptron
Lecture 34 - Perceptron Learning
Lecture 35 - Logical XOR
Lecture 36 - Activation Functions
Lecture 37 - Gradient Descent
Lecture 38 - Feedforward and Backpropagation Neural Network
Lecture 39 - Why Word2Vec?
Lecture 40 - What are CBOW and Skip-Gram Models?
Lecture 41 - One word learning architecture
Lecture 42 - Forward pass for Word2Vec
Lecture 43 - Matrix Operations Explained
Lecture 44 - CBOW and Skip Gram Models
Lecture 45 - Building Skip-gram model using Python
Lecture 46 - Reduction of complexity - sub-sampling, negative sampling
Lecture 47 - Binay tree, Hierarchical softmax
Lecture 48 - Mapping the output layer to Softmax
Lecture 49 - Updating the weights using hierarchical softmax
Lecture 50 - Discussion on the results obtained from word2vec
Lecture 51 - Recap and Introduction
Lecture 52 - ANN as a LM and its limitations
Lecture 53 - Sequence Learning and its applications
Lecture 54 - Introuduction to Recurrent Neural Network
Lecture 55 - Unrolled RNN
Lecture 56 - RNN - Based Language Model
Lecture 57 - BPTT - Forward Pass
Lecture 58 - BPTT - Derivatives for W,V and U
Lecture 59 - BPTT - Exploding and vanishing gradient
Lecture 60 - LSTM
Lecture 61 - Truncated BPTT
Lecture 62 - GRU
Lecture 63 - Introduction and Historical Approaches to Machine Translation
Lecture 64 - What is SMT?
Lecture 65 - Noisy Channel Model, Bayes Rule, Language Model
Lecture 66 - Translation Model, Alignment Variables
Lecture 67 - Alignments again!
Lecture 68 - IBM Model 1

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- Lecture 69 - IBM Model 2
- Lecture 70 - Introduction to Phrase-based translation
- Lecture 71 - Symmetrization of alignments
- Lecture 72 - Extraction of Phrases
- Lecture 73 - Learning/estimating the phrase probabilities using another Symmetrization example
- Lecture 74 - Introduction to evaluation of Machine Translation
- Lecture 75 - BLEU - A short Discussion of the seminal paper
- Lecture 76 - BLEU Demo using NLTK and other Metrics
- Lecture 77 - Encoder-Decoder model for Neural Machine Translation
- Lecture 78 - RNN Based Machine Translation
- Lecture 79 - Recap and Connecting Bloom Taxonomy with Machine Learning
- Lecture 80 - Introduction to Attention based Translation
- Lecture 81 - Research Paper discussion on Neural machine translation by jointly learning to align and translate
- Lecture 82 - Typical NMT architecture and models for multi-language translation
- Lecture 83 - Beam Search, Stochastic Gradient Descent, Mini Batch, Batch
- Lecture 84 - Beam Search, Stochastic Gradient Descent, Mini Batch, Batch
- Lecture 85 - Introduction to Conversation Modeling
- Lecture 86 - A few examples in Conversation Modeling
- Lecture 87 - Some ideas to Implement IR-based Conversation Modeling
- Lecture 88 - Discussion of some ideas in Question Answering
- Lecture 89 - Hyperspace Analogue to Language - HAL
- Lecture 90 - Correlated Occurrence Analogue to Lexical Semantic - COALS
- Lecture 91 - Global Vectors - Glove
- Lecture 92 - Evaluation of Word vectors