Natural Language Processing Nanodegree Syllabus

Contact Info

While going through the program, if you have questions about anything, you can reach us at support@udacity.com. For help from Udacity Mentors and your peers visit the Udacity Classroom.

Nanodegree Program Info

Version: 1.0.0

Length of Program: 74 Days*

** This is a self-paced program and the length is an estimation of total hours the average student may take to complete all required coursework, including lecture and project time. Actual hours may vary.*

Part 1: Introduction to Natural Language Processing

This section provides an overview of the program and introduces the fundamentals of Natural Language Processing through symbolic manipulation, including text cleaning, normalization, and tokenization. You'll then build a part of speech tagger using hidden Markov models.

Project: Part of Speech Tagging

In this project, you'll build a hidden Markov model for part of speech tagging with a universal tagset.

Supporting Lessons

Lesson	Summary
Welcome to Natural Language Processing	Welcome to the Natural Language Processing Nanodegree program!
Udacity Support	Learn about the support you'll have access to during your Nanodegree program!
Intro to NLP	Arpan will give you an overview of how to build a Natural Language Processing pipeline.
Text Processing	Learn to prepare text obtained from different sources for further processing, by cleaning, normalizing and splitting it into individual words or tokens.
Spam Classifier with Naive Bayes	In this section, you'll learn how to build a spam e-mail classifier using the naive Bayes algorithm.
Part of Speech Tagging with HMMs	Luis will give you an overview of several part-of-speech tagging, including a deeper dive on hidden Markov models.

Project: Optimize Your GitHub Profile

Other professionals are collaborating on GitHub and growing their network. Submit your profile to ensure your profile is on par with leaders in your field.

Supporting Lessons

Lesson	Summary
Jobs in NLP	Learn about common jobs in natural language processing, and get tips on how to stay active in the community.

Part 2: Computing with Natural Language

Project: Project: Machine Translation

Apply the skills you've learnt in Natural Language Processing to the challenging and extremely rewarding task of Machine Translation. _Bonne chance!_

Supporting Lessons

Lesson	Summary
Feature extraction and embeddings	Transform text using methods like Bag-of-Words, TF-IDF, Word2Vec and GloVE to extract features that you can use in machine learning models.
Topic Modeling	In this section, you'll learn to split a collection of documents into topics using Latent Dirichlet Analysis (LDA). In the lab, you'll be able to apply this model to a dataset of news articles.
Sentiment Analysis	Learn about using several machine learning classifiers, including Recurrent Neural Networks, to predict the sentiment in text. Apply this to a dataset of movie reviews.
Sequence to Sequence	Here you'll learn about a specific architecture of RNNs for generating one sequence from another sequence. These RNNs are useful for chatbots, machine translation, and more!
Deep Learning Attention	Attention is one of the most important recent innovations in deep learning. In this section, you'll learn attention, and you'll go over a basic implementation of it in the lab.
RNN Keras Lab	This section will prepare you for the Machine Translation project. Here you will get hands-on practice with RNNs in Keras.
Cloud Computing Setup Instructions	Overview of the steps to configure remote environment for GPU-accelerated training (Note: NLPND does not include AWS credits)

Project: Improve Your LinkedIn Profile

Find your next job or connect with industry peers on LinkedIn. Ensure your profile attracts relevant leads that will grow your professional network.

Part 3: Communicating with Natural Language

Project: Project: DNN Speech Recognizer

Build a deep neural network that functions as part of an end-to-end automatic speech recognition pipeline.

Supporting Lessons

Lesson	Summary
Intro to Voice User Interfaces	Get acquainted with the principles and applications of VUI, and get introduced to Alexa skills.
(Optional) Alexa History Skill	Build your own Alexa skill and deploy it!
Speech Recognition	Learn how an ASR pipeline works.

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