Deep Learning 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: 7.0.0

Length of Program: 118 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 Deep Learning

Introduce yourself to deep learning by applying style transfer to your own images, and gaining experience using development tools such as Anaconda and Jupyter notebooks.

Part 2: Neural Networks

Learn neural network basics, and build your first network with Python and NumPy. Use the modern deep learning framework PyTorch to build multi-layer neural networks, and analyze real data.

Project: Predicting Bike-Sharing Patterns

In this project, you'll build and train your own Neural Network from scratch to predict the number of bikeshare users on a given day. Good luck!

Part 3: Convolutional Neural Networks

Learn how to build convolutional networks and use them to classify images (faces, melanomas, etc.) based on

patterns and objects that appear in them. Use these networks to learn data compression and image de-noising.

Project: Dog-Breed Classifier

In this project, you will learn how to build a pipeline to process real-world, user-supplied images. Given an image of a dog, your algorithm will identify an estimate of the canine's breed.

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 Deep Learning	To kick off your industry research, learn about real world applications of Deep Learning and common questions about jobs in this field.

Part 4: Recurrent Neural Networks

Build your own recurrent networks and long short-term memory networks with PyTorch; perform sentiment analysis and use recurrent networks to generate new text from TV scripts.

Project: Generate TV Scripts

Generate a TV script by defining and training a recurrent neural network.

Part 5: Generative Adversarial Networks

Learn to understand and implement a Deep Convolutional GAN (generative adversarial network) to generate realistic images, with Ian Goodfellow, the inventor of GANs, and Jun-Yan Zhu, the creator of CycleGANs.

Project: Generate Faces

Define two adversarial networks, a generator and discriminator, and train them until you can generate realistic faces.

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 6: Deploying a Model

Train and deploy your own sentiment analysis model using Amazon's SageMaker. Deployment gives you the ability to use a trained model to analyze new, user input. Build a model, deploy it, and create a gateway for accessing it from a website.

Project: Deploying a Sentiment Analysis Model

In this project, you will build and deploy a neural network which predicts the sentiment of a user-provided movie review. In addition, you will create a simple web app that uses your deployed model.

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