

Applied Deep Learning - Syllabus

National Taiwan University, 2016 Fall Semester

Instructor Information

Instructor

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Lecture Location & Hours

Thursday 9:10-12:10

General Information

Description

Learning the basic theory of deep learning and how to apply to various applications

Expectations and Goals

The students are expected to understand

- 1) how deep learning works
- 2) how to frame tasks into deep learning problems
- 3) how to use deep learning toolkits to implement the designed models, and
- 4) when and why specific deep learning techniques work for specific problems.

Assignments & Project

5 assignments, 1 group final project, 1 write-up report

Pre-requisites

Required Coding Skills

- Proficiency in Python; All assignments will in Python.

Required Courses

- College Calculus
- Linear Algebra
- Probability
- Machine Learning (preferred but optional)
- Statistics (preferred but optional)

Course Schedule

Week	Topic	Reading	Assignment
1 (09/15/2016)	中秋假期		
2 (09/22/2016)	Introduction		
3 (09/29/2016)	Neural Networks		
4 (10/06/2016)	Backpropagation		
5 (10/13/2016)	Word Representation		Word Embedding
6 (10/20/2016)	Sequential Modeling		
7 (10/27/2016)	Recursive Neural Networks		Sentiment Analysis
8 (11/03/2016)	Convolutional Neural Networks		
9 (11/10/2016)	Recurrent Neural Networks		
10 (11/17/2016)	Gated Mechanism		Natural Language Understanding
11 (11/24/2016)	TBA		
12 (12/01/2016)	Attention Mechanism		Language Generation
13 (12/08/2016)	Representation Learning Multi-Task Learning		
14 (12/15/2016)	TBA		
15 (12/22/2016)	Deep Reinforcement Learning		Game Playing
16 (12/29/2016)	Deep Reinforcement Learning		
17 (01/05/2017)	TBA		
18 (01/12/2017)	<i>Final Project Presentation</i>		

Assignment Schedule

Release Date	Due Date	Subject	Time
10/13/2016	10/27/2016	Word Embedding	2 weeks
10/27/2016	11/17/2016	Sentiment Analysis	3 weeks
11/17/2016	12/01/2016	Natural Language Understanding	2 weeks
12/01/2016	12/22/2016	Language Generation	3 weeks
12/22/2016	01/05/2017	Game Playing	2 weeks