Course Information

Reporting Issues

Please **read this page before posting (https://bcourses.berkeley.edu/courses/1487769/pages/reporting-an-issue)** .

Piazza

Use this link to Piazza for general class discussions

Discussion Times

(No discussions in the first week. Discussions start week of)

Number	Time	Location	GSI
101			
102			
103			
104			
105			
106			
107			
108			

Course Overview

Deep Networks have revolutionized computer vision, voice interaction, natural language and robotics. They have growing impact in the sciences and medicine, and are starting to touch many other aspects of life. Unlike many other computational tools though, they do not follow a closed set of theoretical principles. In Yann Lecun's words they require "an interplay between intuitive insights, theoretical modeling, practical implementations, empirical studies, and scientific analyses." This course attempts to cover that ground, and has three goals:

* Design principles and best practices: design motifs that work well in particular domains, structure optimization and parameter optimization.

* Visualizing deep networks. Exploring the training and use of deep networks with visualization tools.

* Understanding deep networks. Methods with formal guarantees: generative and adversarial models.

Logistics

- Course Numbers: CS [L,W]182/282A Spring 2020, UC Berkeley
- Class Numbers:
- Instructor: **John Canny** **(http://cs.berkeley.edu/%7Ejfc)**
- GSIs:
  - TBD
- Time:
- Location:
- Discussion: Join Piazza for announcements and to ask questions about the course

Prerequisites

The prerequisites for this course are:

* Knowledge of calculus and linear algebra, Math 53/54 or equivalent. You'll need this throughout the course.

* Probability and Statistics, CS70 or Stat 134. We'll talk about continuous and discrete probability distributions. CS70 is bare minimum preparation, a stat course is better.

* Machine Learning, CS189. You may be able to manage the course without 189 but in that case you should have a strong stat background.

* Programming, CS61B or equivalent. Assignments will mostly use Python. If you need some help, try **this tutorial from CS231n** **(http://cs231n.github.io/python-numpy-tutorial/)**

Texts

We'll frequently use the online book: **Deep Learning** **(http://www.deeplearningbook.org/)** by Ian Goodfellow and Yoshua Bengio and Aaron Courville. For reinforcement learning, the new version of Sutton and Barto's classic book is **available online** **(http://incompleteideas.net/book/bookdraft2018jan1.pdf)** .

Grading

- Class Participation: 10%
- Midterms: 30%
- Final Project (in groups): 30%
- Assignments : 30%

Slip Days

You can use up to 5 slip days for late assignments.

Office hours

Staff	Time	Location
John Canny	M 2-3pm	389 Soda

Lectures Online

The class will be screen-captured and audio-recorded. Recordings will be available from **bCourses (https://bcourses.berkeley.edu/courses/1487769/external_tools/32692)** and CalCentral. You should be able to get them from the "Course Captures" tab at the left.