

CS230

Fall 2018

Andrew Ng, Kian Katanforoosh

Teaching Team

Instructor



Andrew Ng

Instructor



Kian Katanforoosh

Course coordinator



Swati Dube

Course advisor



Younes Bensouda Mourri

Teaching Assistants

Co-head TAs



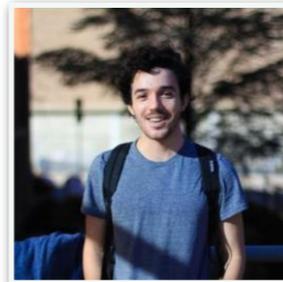
Aarti Bagul



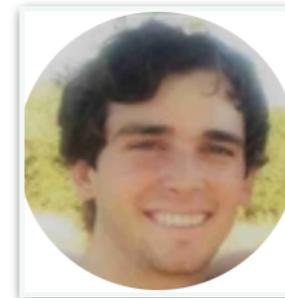
Abhijeet Sheno



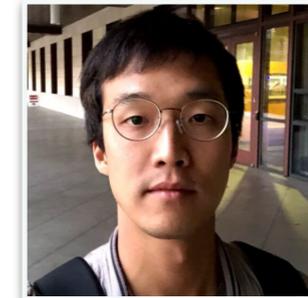
Steven Chen



Daniel Kunin



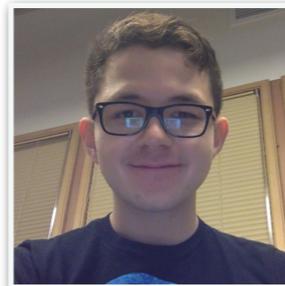
Cristian Aramburu



Jay Whang



Sarah Najmark



Pedro Garzon



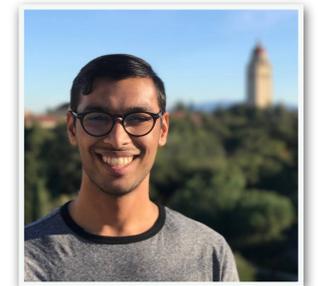
Weini Yu



Ahmad-reza Momeni



Patrick Cho



Shubhang Desai
(section leader)

Course details

Course details

5 “courses”:

C1: Neural Networks and Deep Learning

C2: Improving Deep Neural Networks

C3: Strategy for Machine Learning Projects

C4: Convolutional Neural Networks

C5: Sequence Models

Example: C2M3: Course 2 Module 3

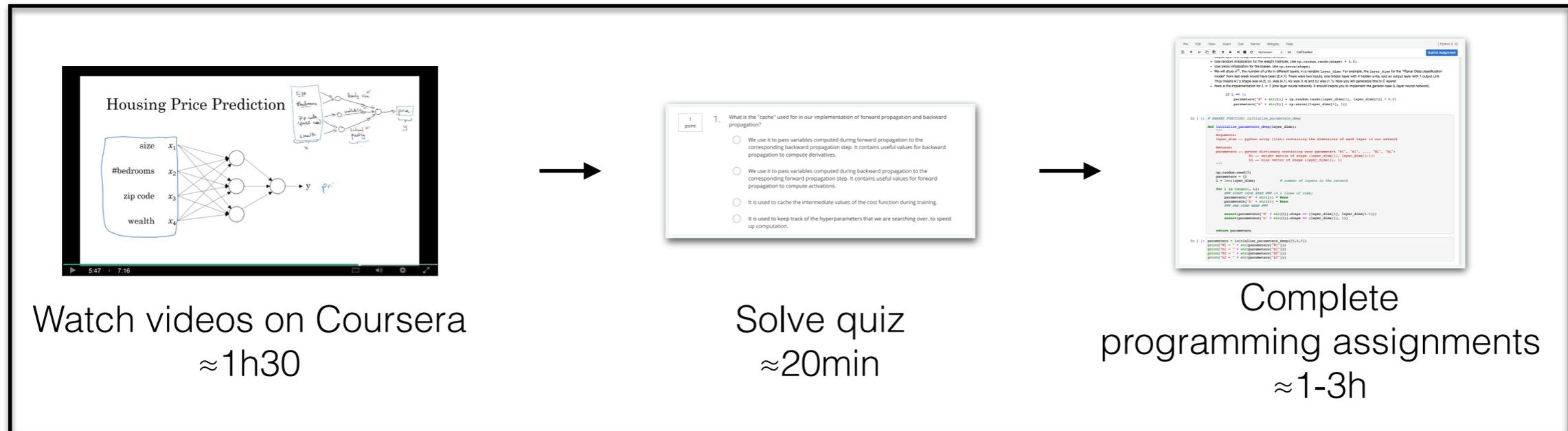
Schedule is on <http://cs230.stanford.edu/syllabus.html>

We are going to use the Coursera Platform: www.coursera.org

The class forum is on Piazza: piazza.com/stanford/fall2018/cs230

One week in the life of a CS230 student

1 module



1 week of class ≈ 2 modules + Go to in-class lecture ≈ 1h20 + TA sections on Fridays ≈ 1 hour + 15min project mentorship with TA

Assignments and Quizzes are due every Wednesday at 11am
Do not follow the deadlines displayed on Coursera!!!



LiveSlides web content

To view

Download the add-in.

liveslides.com/download

Start the presentation.

Grading Formula

$$\textit{Grade} = 0.02A + 0.08Q + 0.25Pa + 0.25M + 0.40Pr$$

A = Attendance

Q = Quizzes

Pa = Programming assignments

M = Midterm

Pr = Final-project

Active Piazza participation = 1% bonus



 **LiveSlides** web content

To view

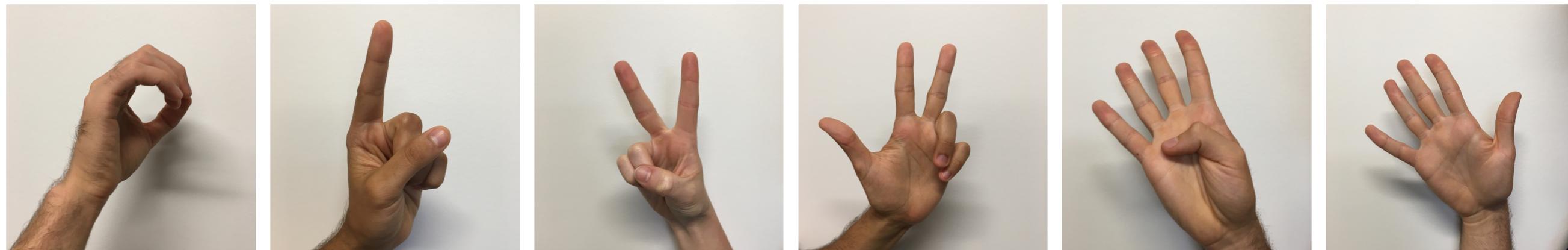
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Programming assignments

Projects: SIGN language detection



$y = 0$


$$\begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

$y = 1$


$$\begin{bmatrix} 0 \\ 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

$y = 2$


$$\begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

$y = 3$


$$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \\ 0 \\ 0 \end{bmatrix}$$

$y = 4$


$$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}$$

$y = 5$

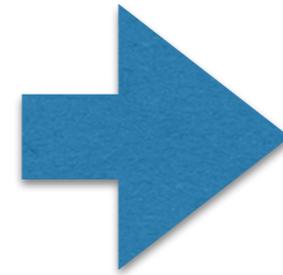

$$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 1 \end{bmatrix}$$

Assignment: The Happy House

$y = 0$



$y = 0$

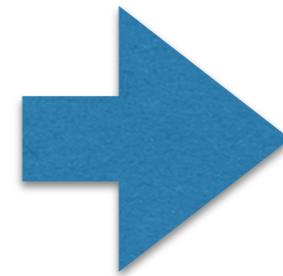


can't enter
the Happy House

$y = 1$

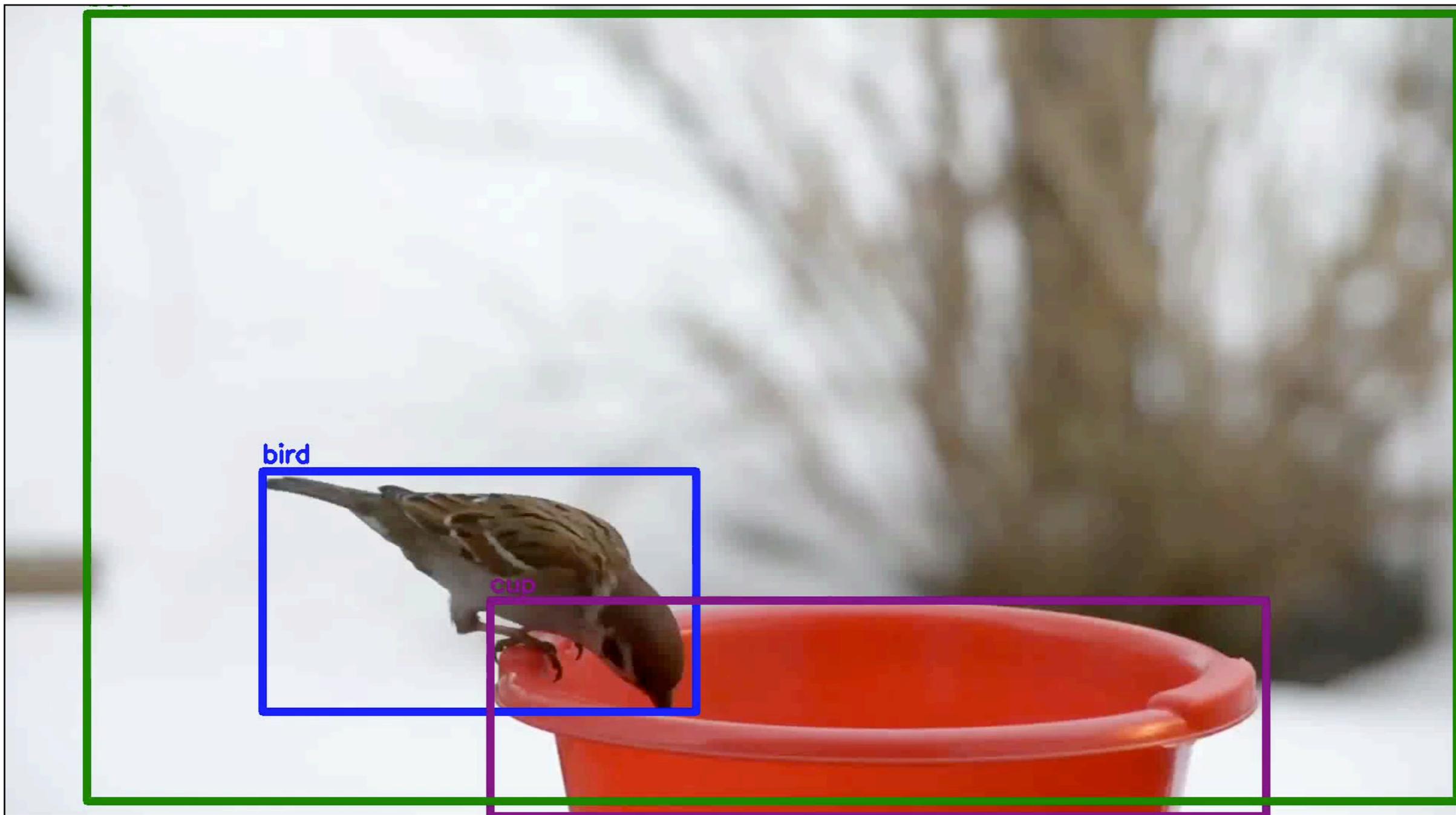


$y = 1$



can enter
the Happy House!

Assignment: Object detection



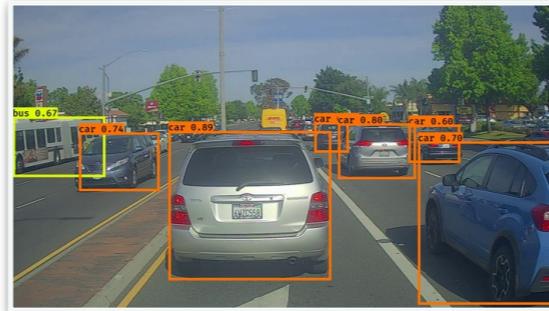
[Joseph Redmon, Ali Farhadi: YOLO9000: Better, Faster, Stronger, 2016]

[Another fun video generated with YOLOv2 by J. Redmon: <https://youtu.be/VOC3huqHrss>]

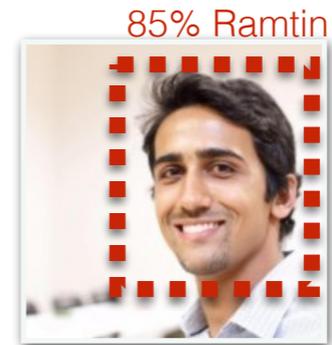
Projects: others



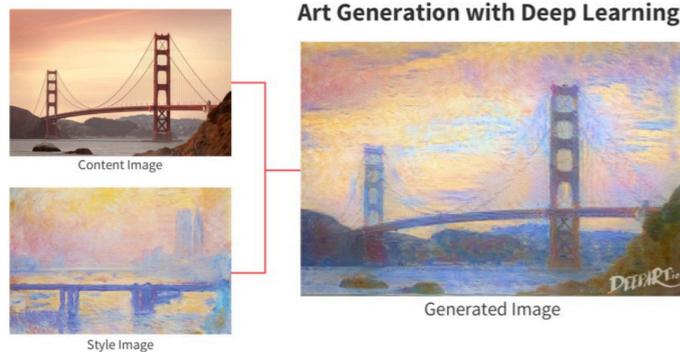
Optimal goalkeeper shoot prediction



Car detection



Face recognition



Art generation

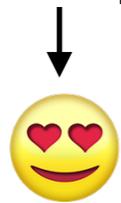


Music generation



Text generation

“I love you”



Emojifier

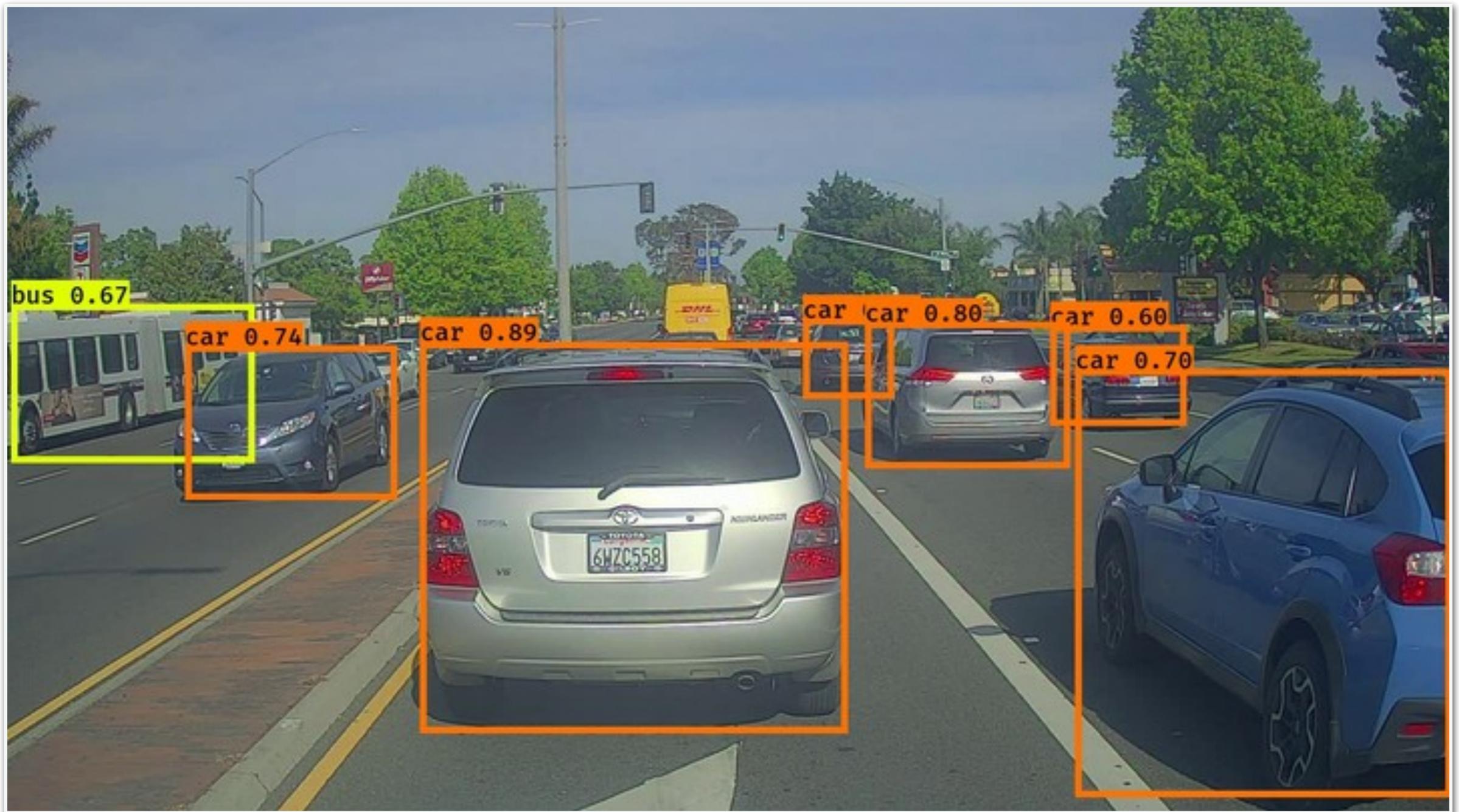


Machine translation



Trigger word detection

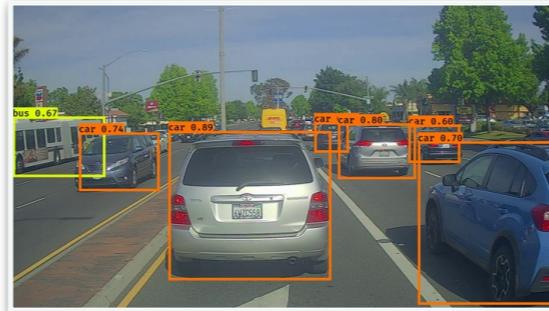
And many more...



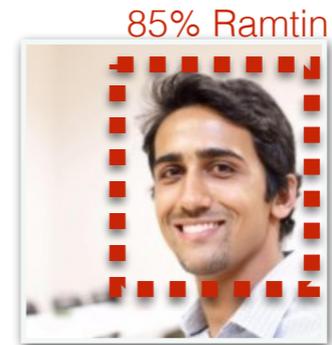
Projects: others



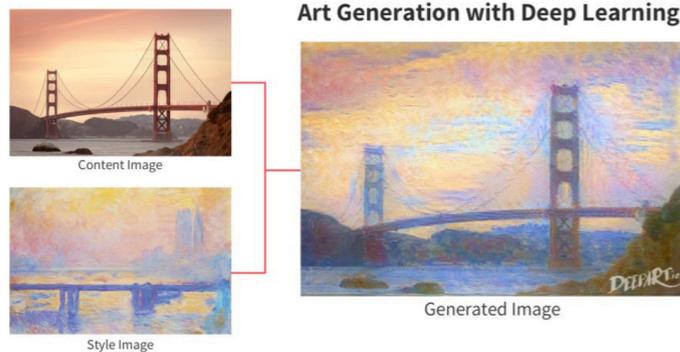
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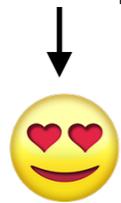


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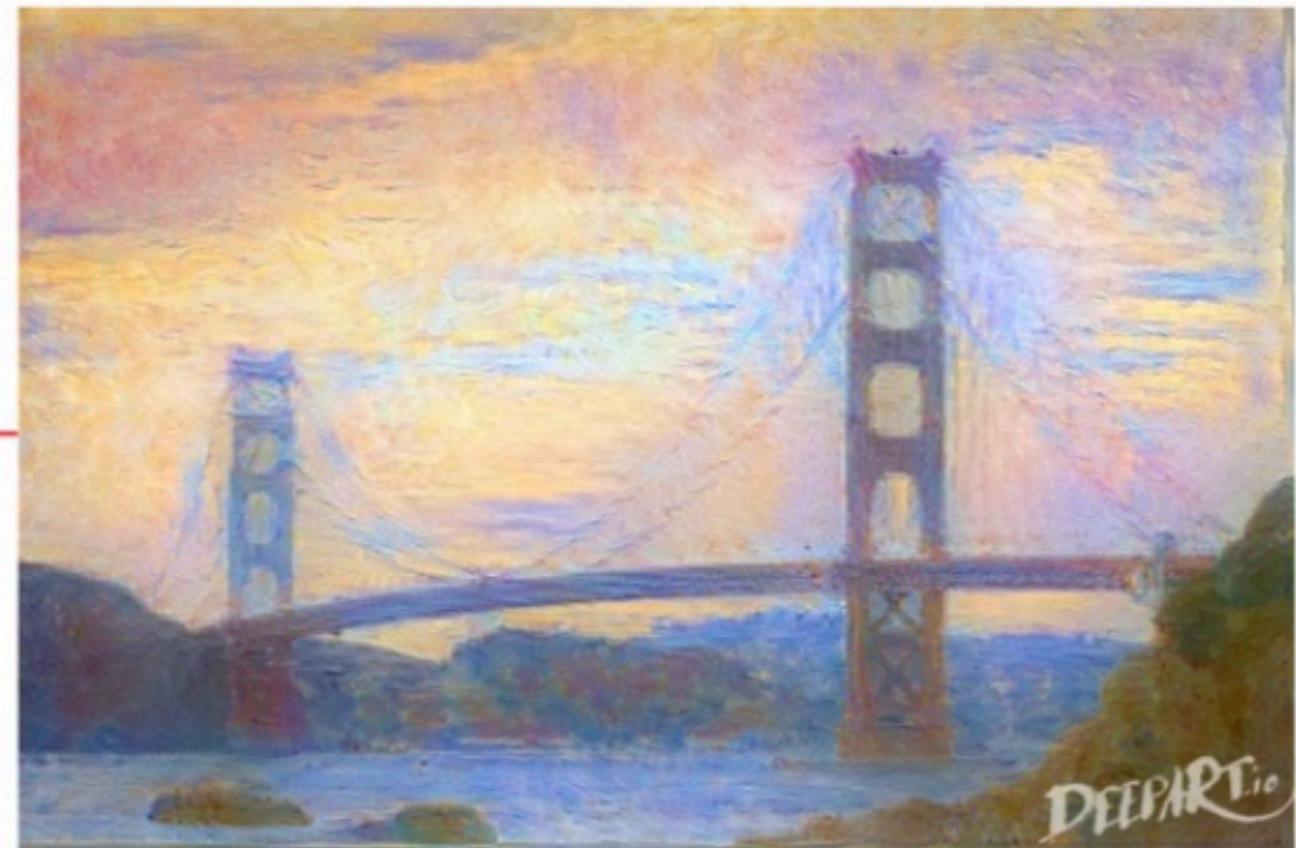
Art Generation with Deep Learning



Content Image



Style Image

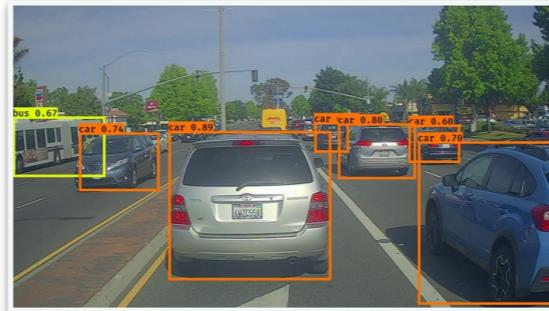


Generated Image

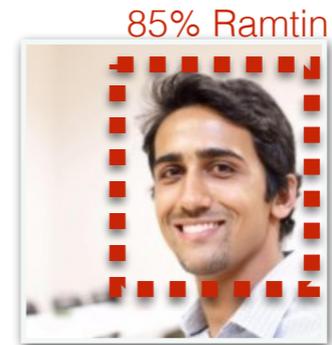
Projects: others



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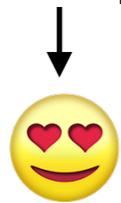


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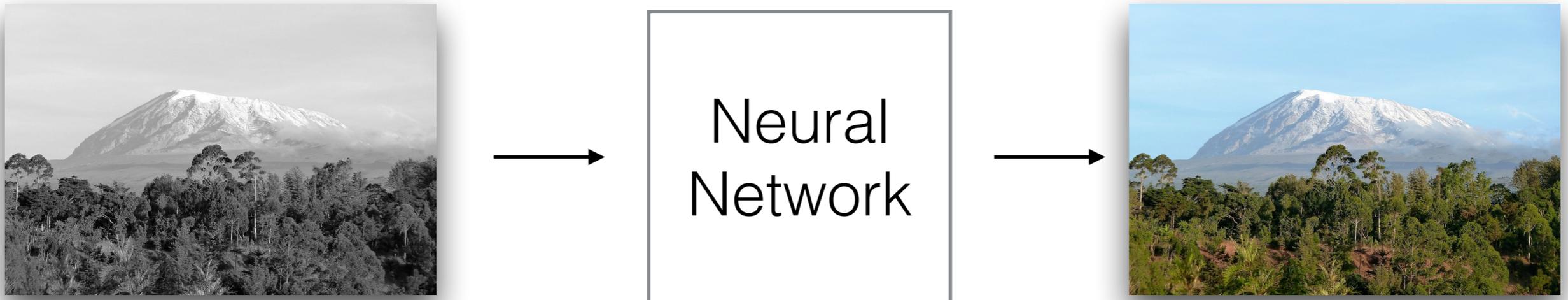
Trigger word detection

And many more...

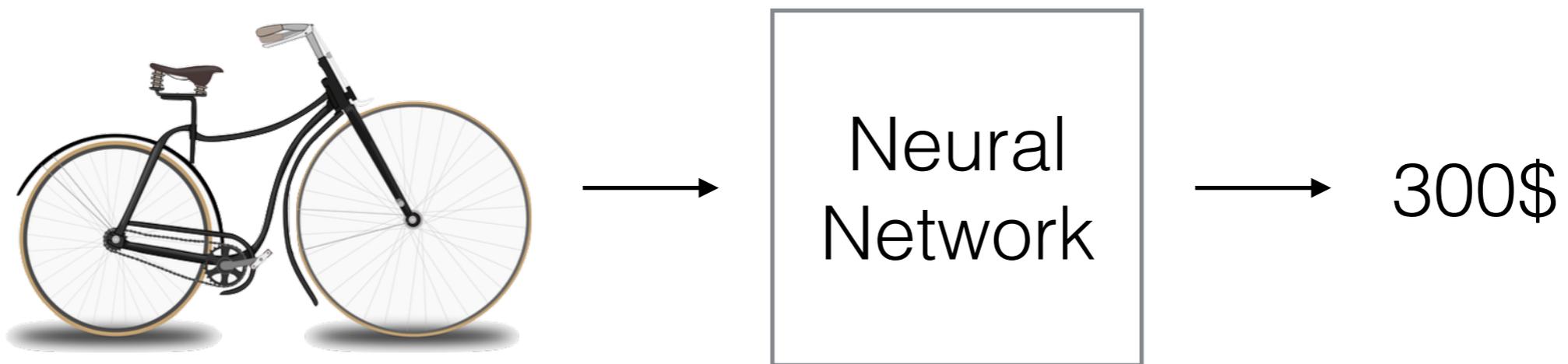
Example of projects

Projects: others

Coloring Black&White pictures with Deep Learning



Predicting price of an object from a picture



And many more...

Predicting atom energy based on atomic-structure

Visual Question Answering

Cancer/Parkinson/Alzheimer detection

Activity recognition in video

Music genre classification / Music Compression

Accent transfer in a speech

Generating images based on a given legend

Detecting earthquake precursor signals

...

To sum up

1. You will learn about wide range of deep learning topics
2. The course is very applied, you will code these applications
3. You have access to mentorship to build an outstanding project in 10 weeks

For next Wednesday (10/03) 11am:

- Create Coursera account and join the private session using the invitation
- Finish **C1M1** & **C1M2**
- 2 Quizzes:
 - ★ Introduction to deep learning
 - ★ Neural Network Basics
- 2 programming Assignments:
 - ★ Python Basics with Numpy
 - ★ Logistic Regression with a neural network mindset

For Friday (09/28) end of the day:

- Find project team-mates and fill-in the Google form that will be posted on Piazza.

Download your notebooks after you finished them!

Follow only the website deadlines!



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