

Outline video: Lecture 1 - Class Introduction and Logistics

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1. Introduction to the course

There are many courses:

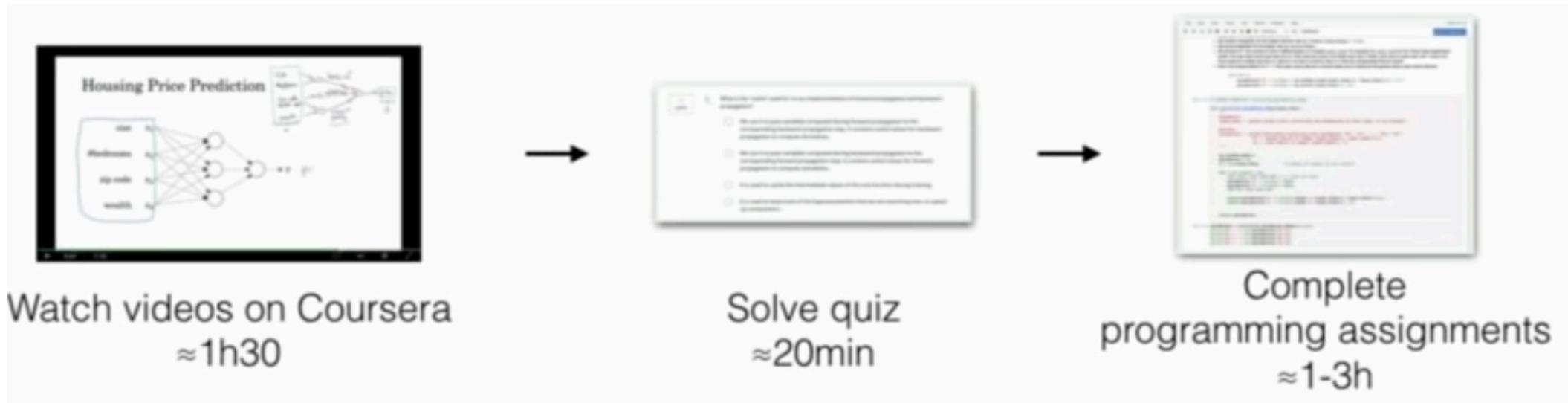
- CS229: Machine Learning (math intensive)
- CS229A: Machine Learning with practical applications (intensive in applying ML in daily life, in industry)
- *CS230: Course in Deep Learning*

2. CS230 - Deep Learning

- Application in life:
 - Web engine: When using google, bing, ... search engines online, there will be an algorithm to improve the algorithm quality
 - Advertising industry: bringing advertisements that are really suitable to consumers, helping companies not spend too much money on advertising but also achieve high revenue.
 - Currently, voice search accounts for 10% of the total, this is also one of the new fields, voice processing, creating an intelligent chat bot to handle, ...
 - In the banking sector, the algorithm will learn the transaction history to assess the possibility of users being fraudulently used.
 - Making recommendation systems make recommendations more efficient

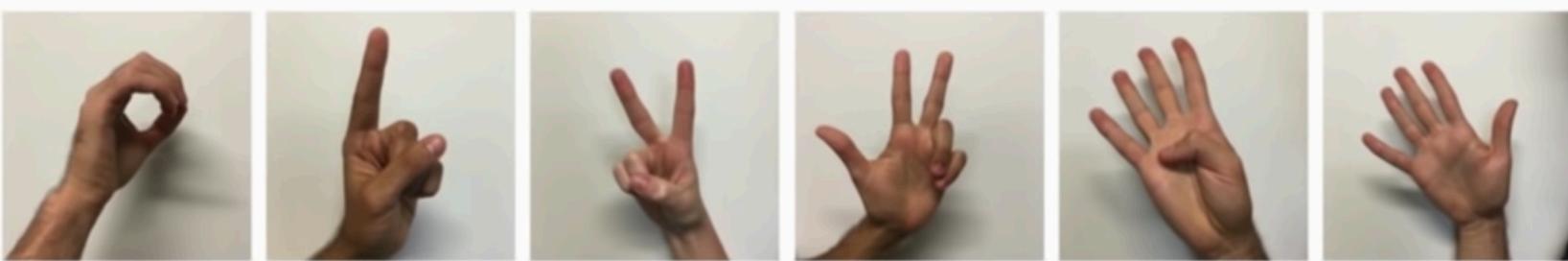
2. CS230 - Deep Learning

- Course content: 5 courses
 1. Neural Network and Deep Learning
 2. Improving Deep Natural Networks
 3. Strategy for Machine Learning Project
 4. Convolutional Neural Networks
 5. Sequence Model
- Introduction to online deep learning course (Standford)



3. Assignment - Sign Language Detection

- Use the Neural Network to detect hand gestures



$$y = 0$$

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

$$y = 1$$

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

$$y = 2$$

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

$$y = 3$$

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

$$y = 4$$

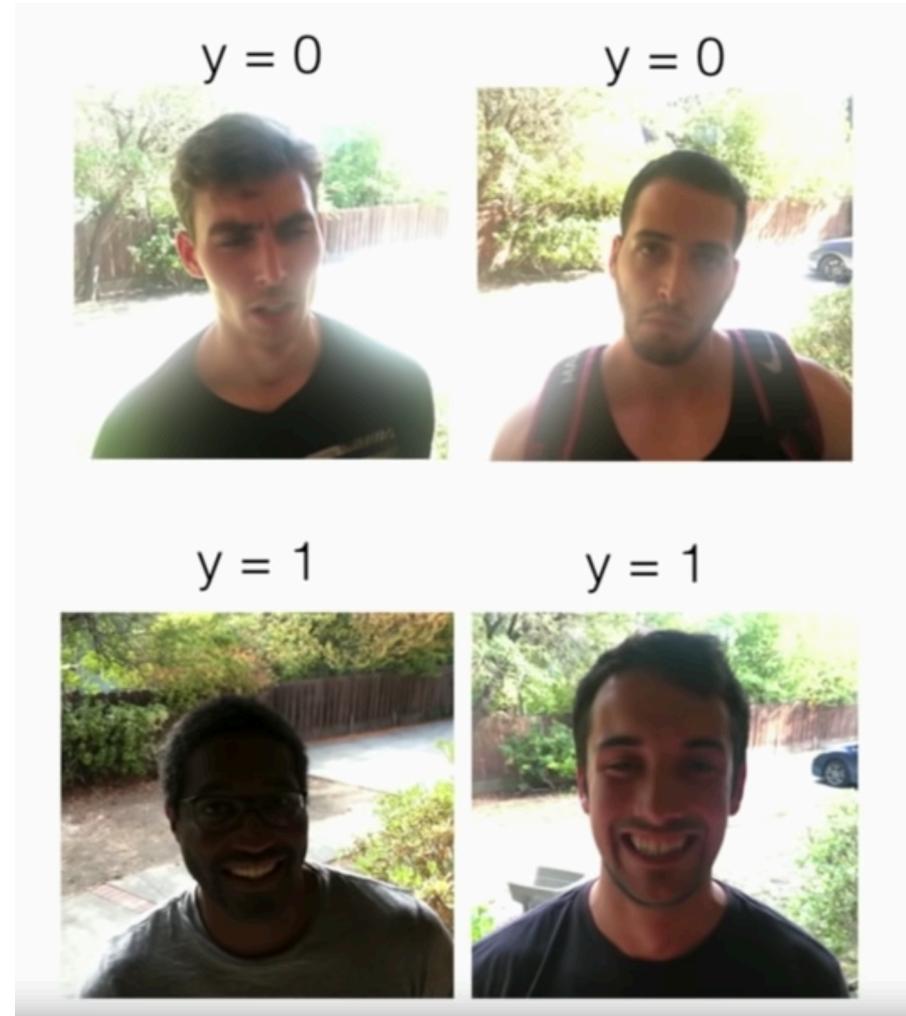
$$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 1 \\ 0 \\ 0 \end{bmatrix}$$

$$y = 5$$

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

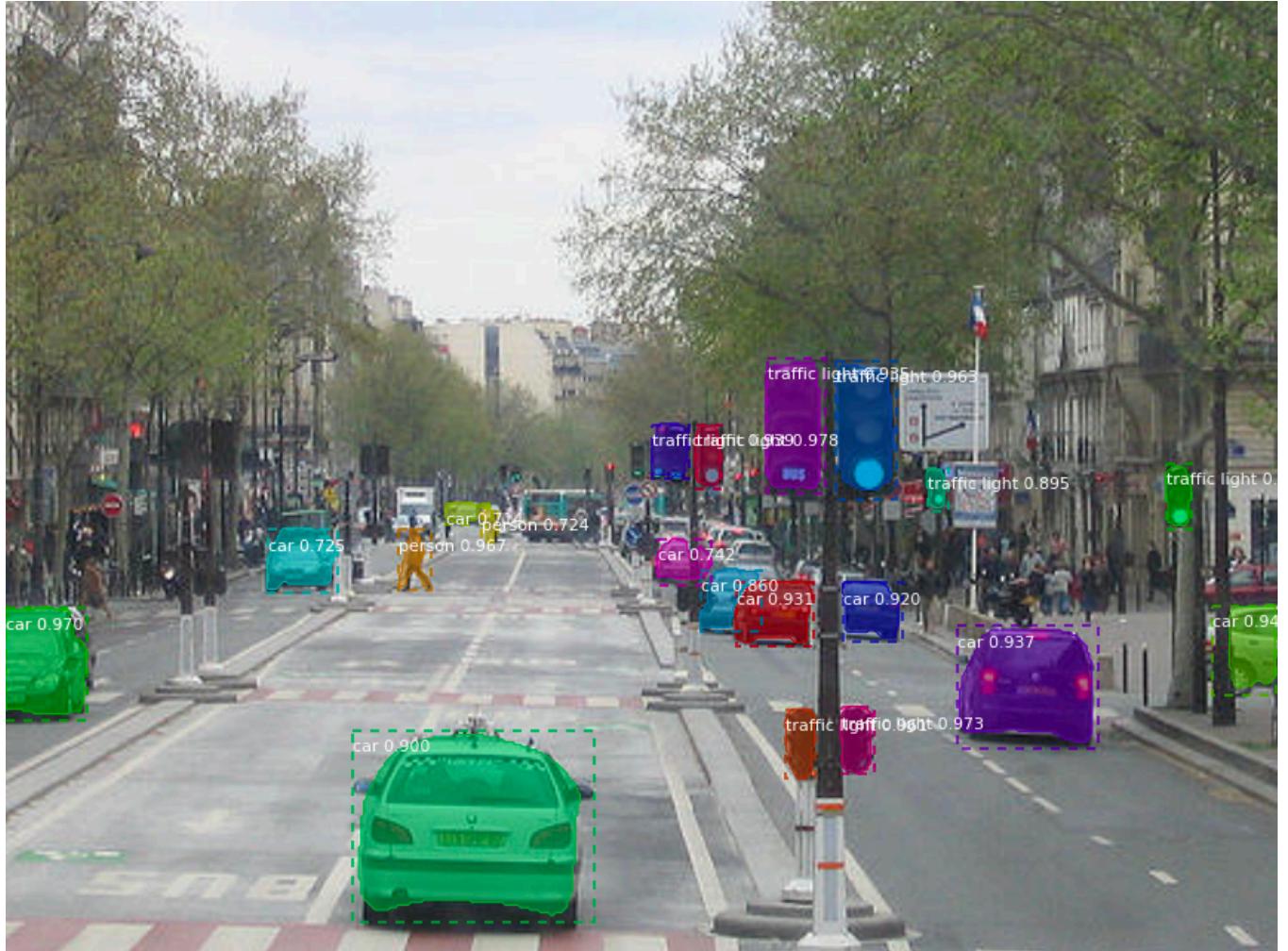
3. Assignment - Sign Language Detection

- Detect facial gestures, or recognize emotions through a person's face image



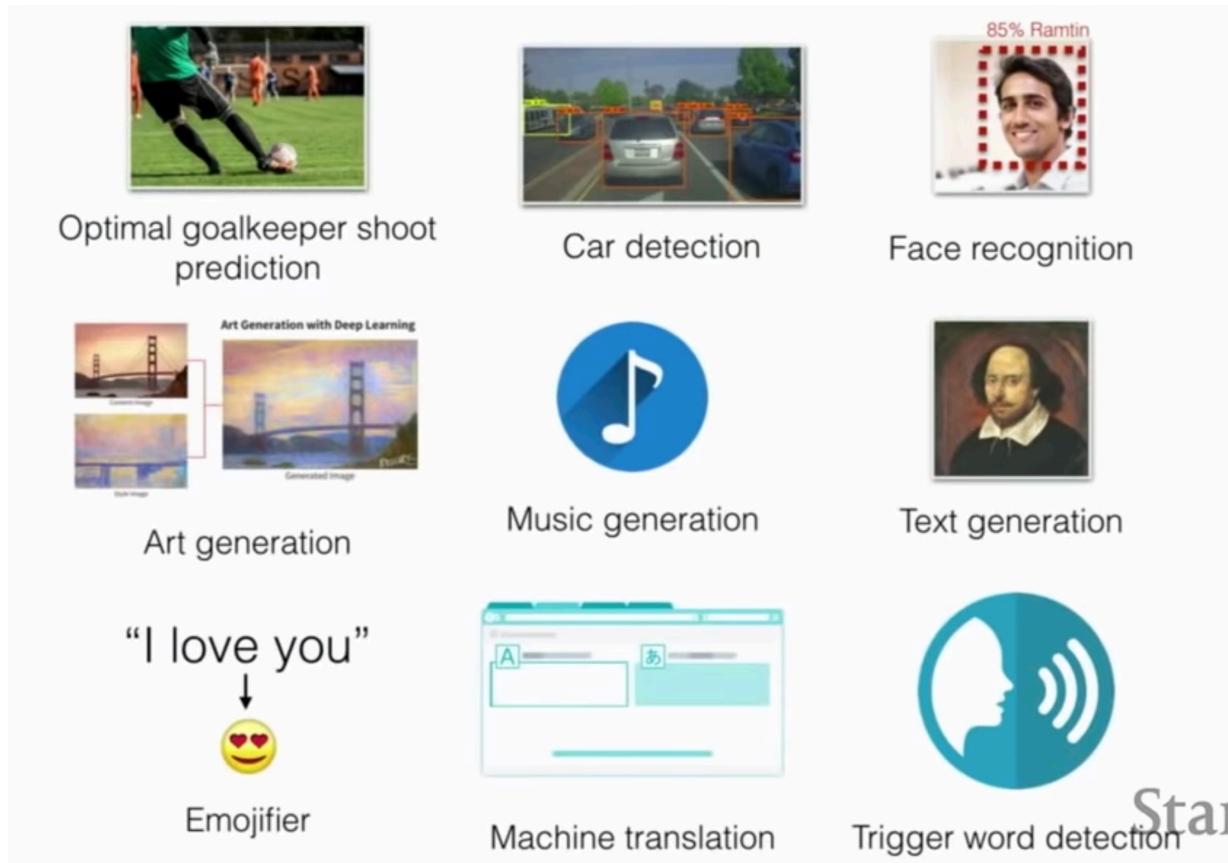
3. Assignment - Object Detection

- Real-time object recognition



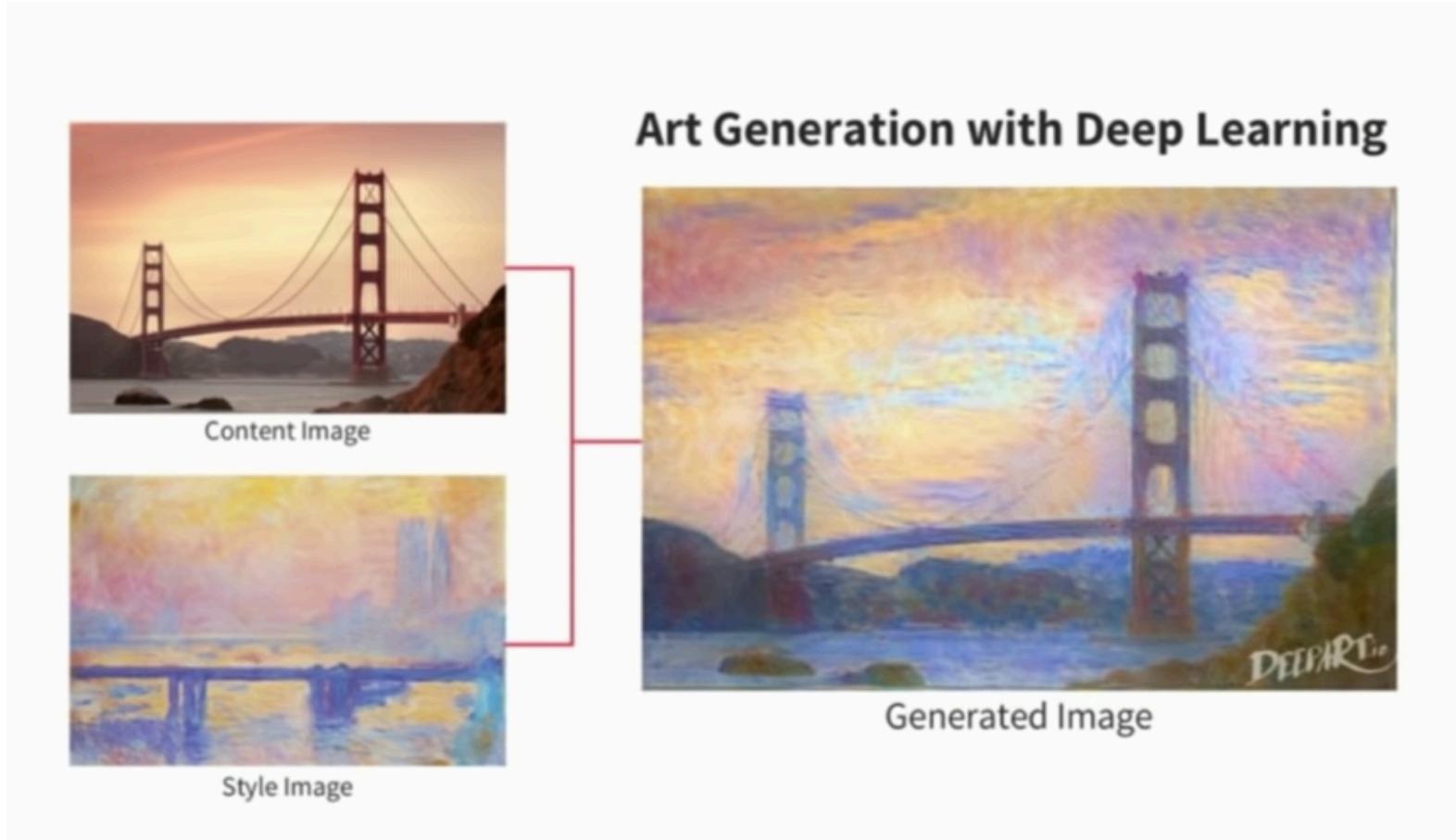
3. Assignment - Others

- Some other projects that people may be interested in



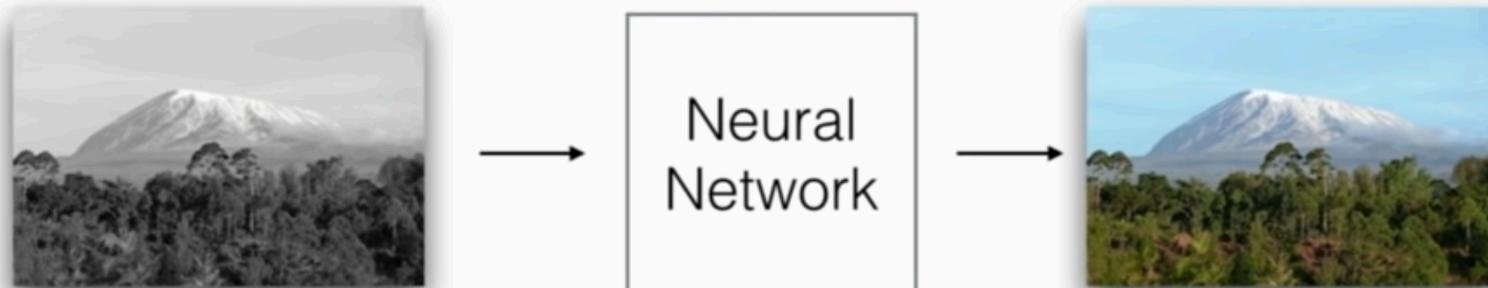
3. Assignment - Generative Model

- After learning some characteristic features of the image, the building model can create images similar to the ones it learned without relying on the original image input.

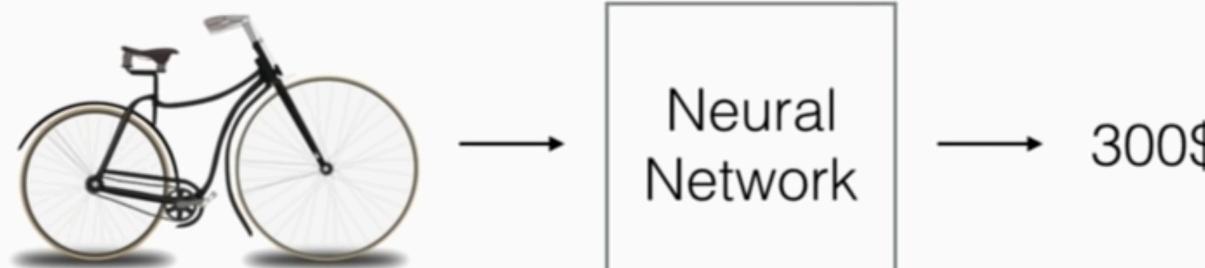


3. Assignment - Generative Model

Coloring Black&White pictures with Deep Learning



Predicting price of an object from a picture



Stanf

3. Assignment - Others

- Predict the energy core based on atomic structure
- Answering the question, based on the knowledge learned
- Identify cancer through images
- Detect activities in video
- Classify tones, compress music, images
- Understand the emotions in a text (converting text into an emotional voice)
- Create new image
- Detect earthquake warning signals

4. Reference

Stanford CS230: Deep Learning I Autumn 2018 I

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https://www.youtube.com/watch?v=PySo_6S4ZAg