

EMS702P Statistical Thinking and Applied Machine Learning

Week 10.3 – Deep Learning: Engineering applications

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Deep learning

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Edition:

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Deep Learning:

Neural networks with multiple hidden layers

Some engineering applications using Deep Learning:

- Classification
- Prediction (Regression)
- Clustering (Segmentation)

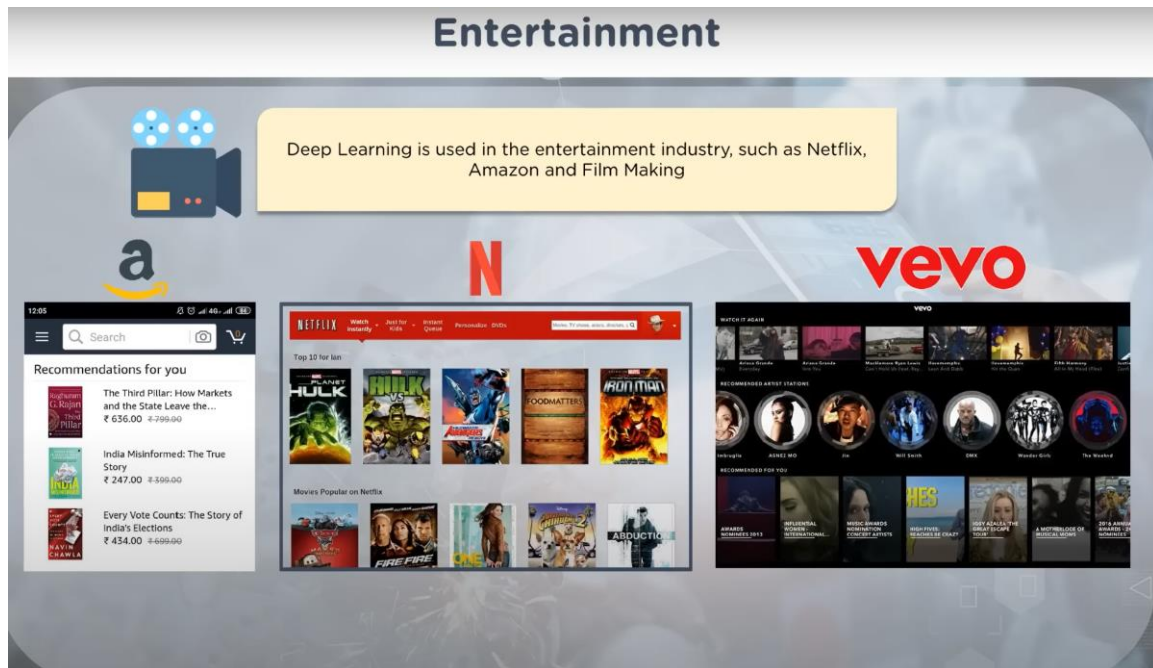
What's in it for you?



Healthcare

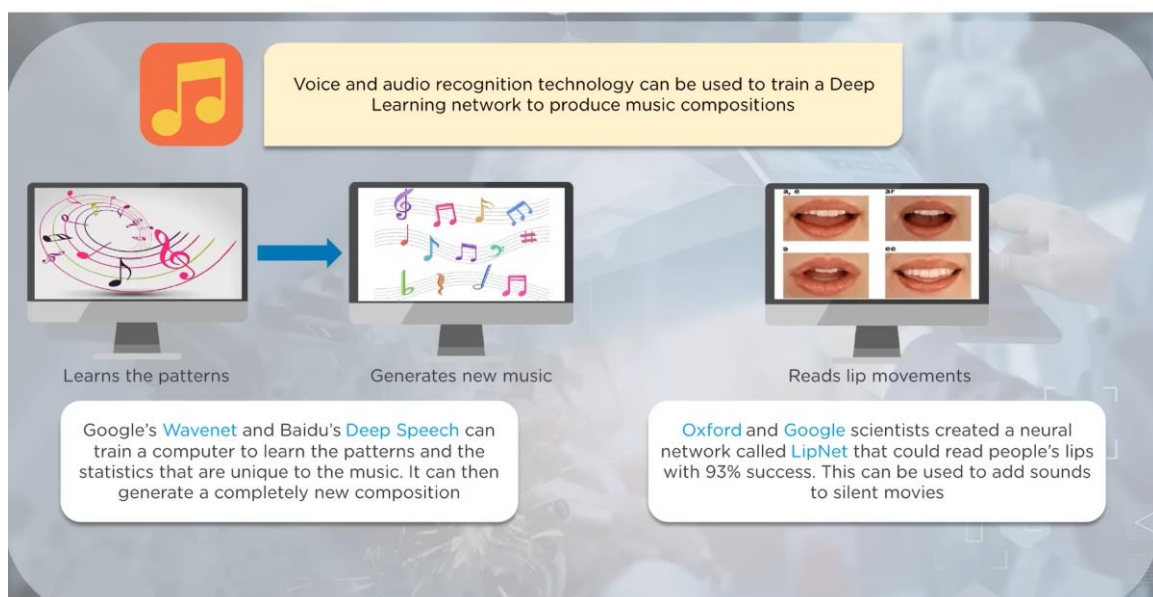


Deep Learning helps in early detection of **cancer cells** and **tumors**, improves the time-consuming process of **synthesizing new drugs**, and invents sophisticated **medical instruments**.



Amazon, Netflix and **Vevo** use **recommender systems** to provide a personalized experience to its viewers using their show preferences, time of access, history, etc.

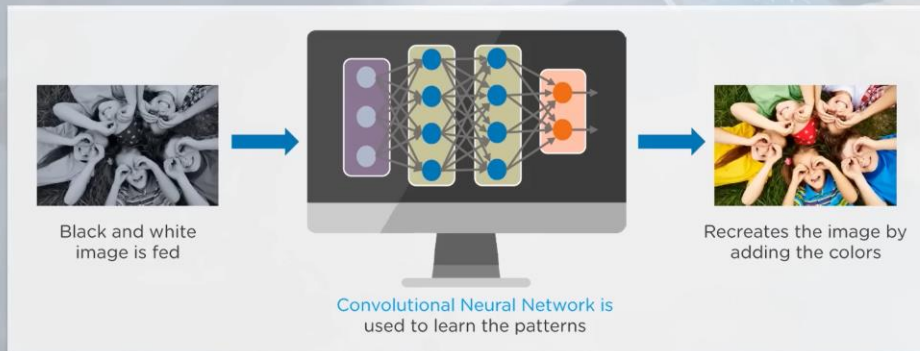
Music generation and adding sounds to silent movies



Coloring images and videos



Deep Learning can be used to color images and videos by taking the objects and their context within the photograph



Robotics



Deep Learning is heavily used these days in building robots to perform human-like tasks



Spotmini

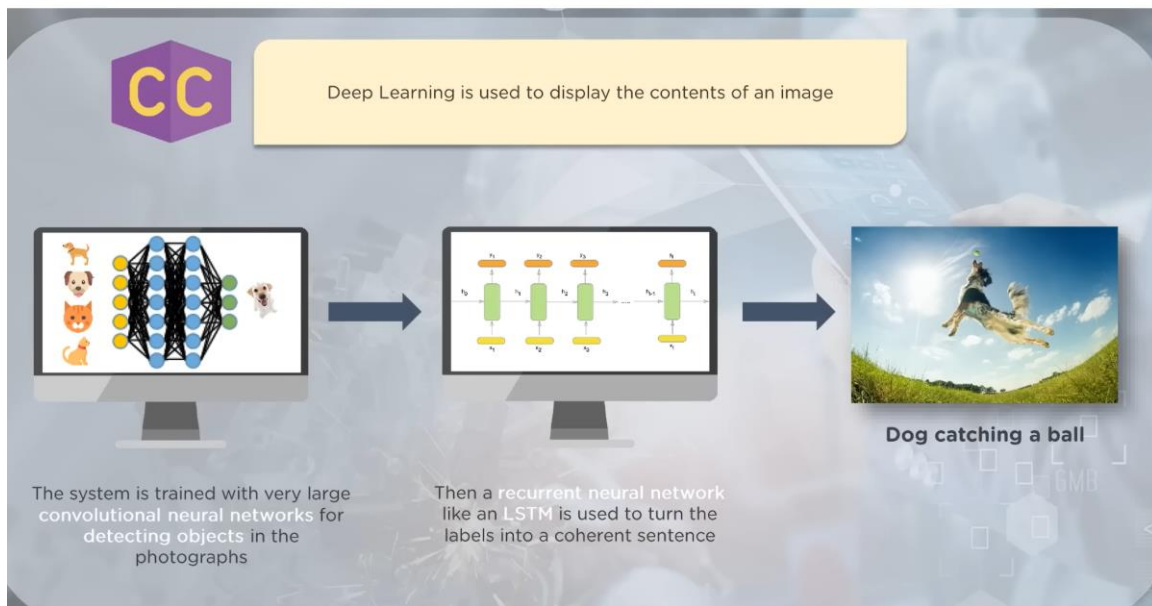


Robots by **Boston Dynamics** react to people pushing them around, get up when they fall, can unload a dishwasher, and do other tasks as well

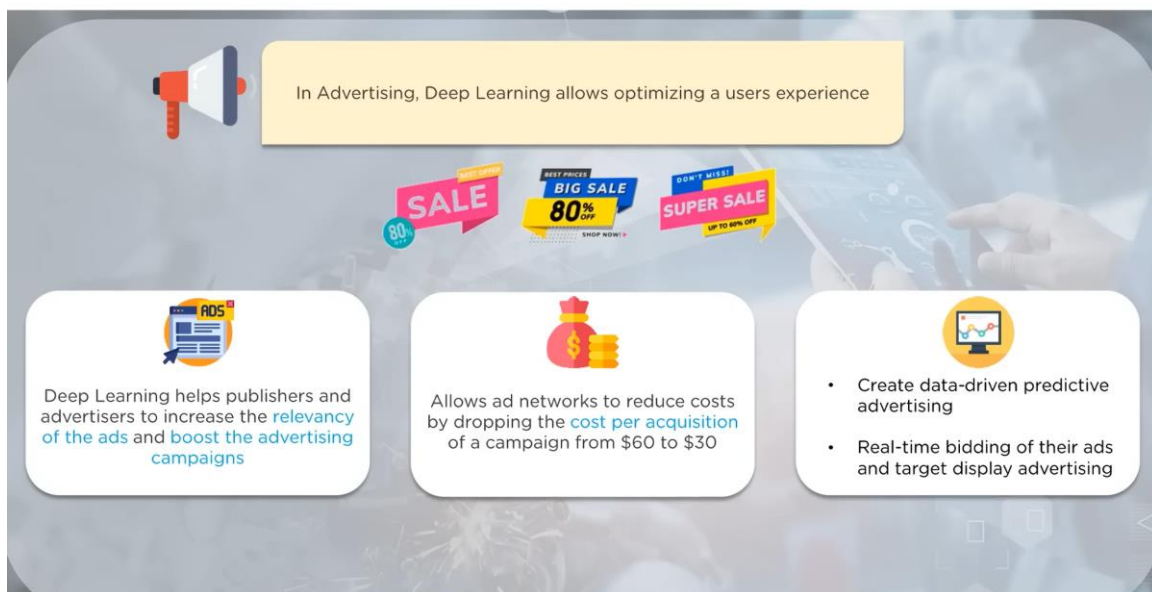


Atlas

Image caption generation



Advertising



Earthquake prediction

