

Machine learning introduction

Mantas Marcinkus

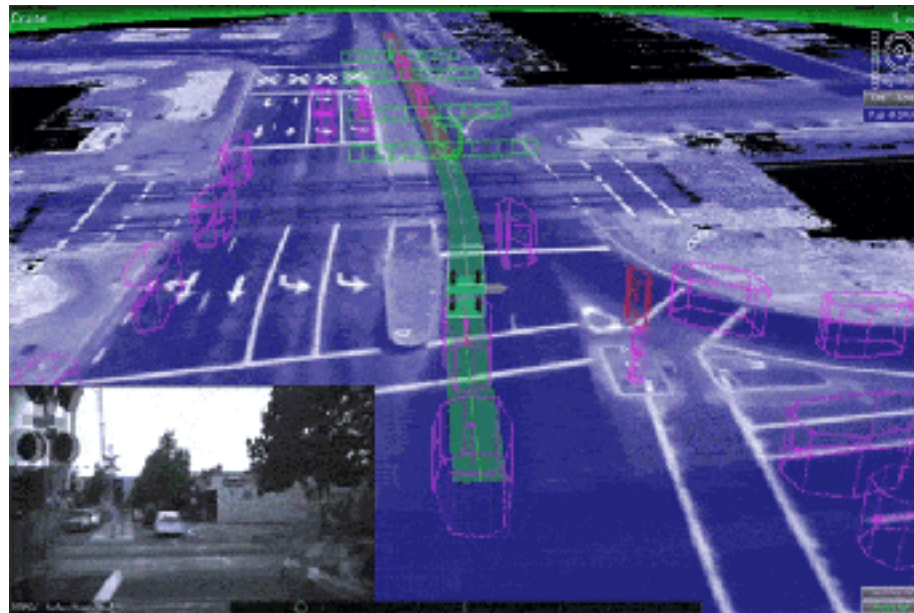
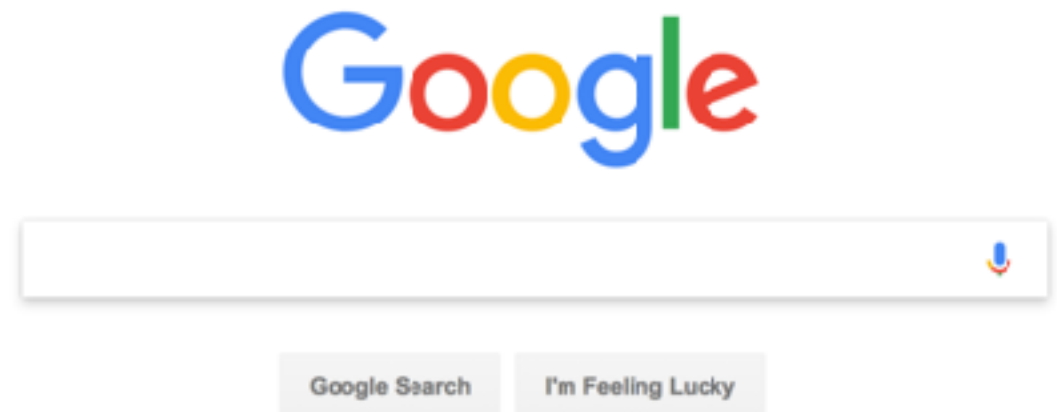
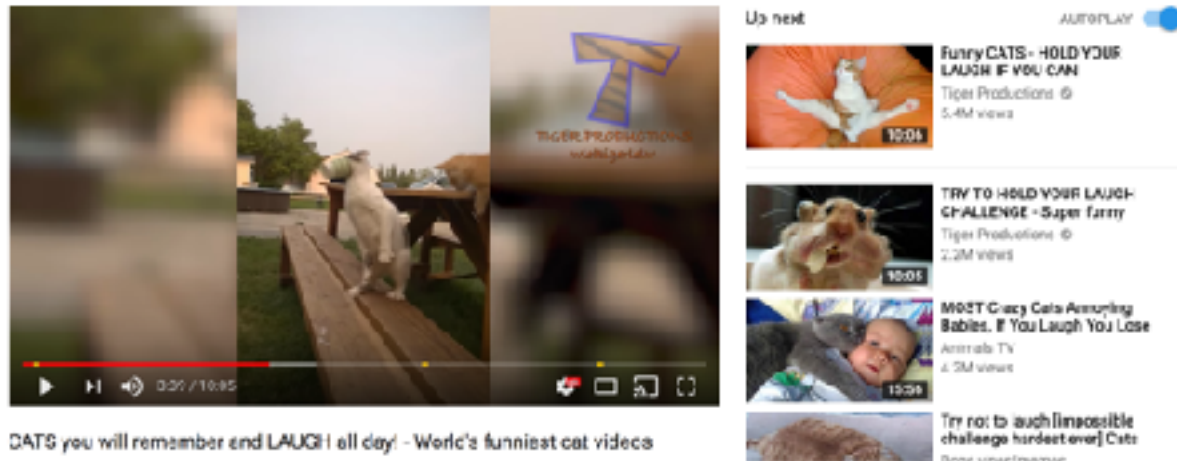
Corporate Entrepreneur @ Danske Bank

2017 December

Machine learning - what are we talking about?

- Machine learning - what is it?
- Machine learning applications
- Machine learning - basic example
- (some) Theory
- Machine learning algorithms
- Demonstrations (if we make it)

Machine learning is everywhere



About 17,100,000 results (0.60 seconds)

Pythonidae - Wikipedia

<https://en.wikipedia.org/wiki/Pythonidae>

The Pythonidae, commonly known simply as pythons, from the Greek word python are a family of nonvenomous snakes found in Africa, Asia, and Australia. Among its members are some of the largest snakes in the world. Eight genera and 31 species are currently recognized. Contents. [hide]. 1

Distribution and habitat ...

[Python \(genus\)](#) · [Morelia](#) · [Pythonidae](#)

People also ask

Do python snakes make good pets?

Are python snake poisonous?

What does a python snake do?

What is the largest snake ever found?

Feedback



More images

Python family

Snakes

The Pythonidae, commonly known simply as pythons, from the Greek word python, are a family of nonvenomous snakes found in Africa, Asia, and Australia. Among its members are some of the largest snakes in the world.

About 199,000,000 results (0.17 seconds)

Welcome to Python.org

<https://www.python.org/>

The official home of the Python Programming Language.

Search python.org

Download

Python 3.6.3 - Windows -
Python2orPython3 - Python 3.6.2

Documentation

Browse the docs online or download a
copy of your own ...

Python 3.6.3

PEP 468 - What's New In Python 3.6 -
PEP 530 - ...

Getting Started

BeginnersGuide -
BeginnersGuide/Download - IDEs -
PythonEditors

Windows

Python 2.7.14 - Python 3.6.2 - Python
3.7.0a2 - ...

Python2orPython3

What are the differences? Short
version: Python 2.x is legacy ...

Python (programming language) - Wikipedia

[https://en.wikipedia.org/wiki/Python_\(programming_language\)](https://en.wikipedia.org/wiki/Python_(programming_language))

Python

High-level programming
language



Python is a widely used high-level programming language for general-purpose programming, created by Guido van Rossum and first released in 1991. [Wikipedia](#)

Typing discipline: Duck, dynamic, strong

Designed by: [Guido van Rossum](#)

First appeared: 20 February 1991; 26 years ago

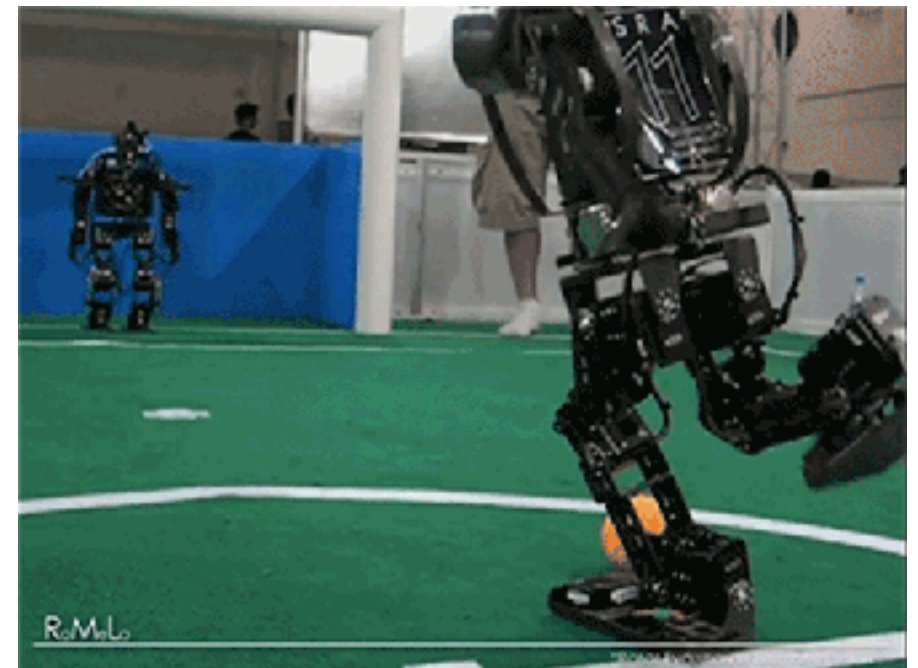
Paradigm: Object-oriented, imperative, functional, procedural, reflective

Stable release: 3.6.3 / 3 October 2017; 60 days ago;
2.7.14 / 16 September 2017; 2 months ago

Filename extensions: .py, .pyc, .pyd, .pyo (prior to

Machine learning applications

- Image recognition
- Fraud detection
- Recommender systems
- Speech and text recognition
- etc.



Machine learning is **using data**
to *answer questions*.

Machine learning - an example



7 steps of Machine learning process

- Gathering data
- Preparing data
- Choosing a model
- Training the model
- Evaluating the model
- Parameter tuning
- Prediction

(some) Machine learning theory

- Supervised Machine learning - Classification & Regression
- Unsupervised Machine learning - Clustering & Association



(some) Machine learning algorithms

- Decision tree learning
- Artificial neural networks
- Deep learning
- Reinforcement learning
- Genetic algorithms
- etc.

Machine learning tools

Python libraries that I used:

- numpy - scientific computing
- scikit-learn - machine learning models
- pandas - data structuring
- matplotlib - plotting

Other tools to look into:

- Tensorflow (by Google)
- CNTK (by Microsoft)
- Onnx (by Microsoft, Facebook, Amazon and others)

Machine learning sources

- Udacity
- Udemy
- Coursera

Amazing machine learning examples

- Automatic colorisation of black and white images
- Adding sound to silent movies
- Automatic text translation using camera (Google translate)
- Automatic items recognition (Samsung Bixby's vision)
- Voice search through your photos (Google assistant and Bixby)
- Image generation through only text based description (Google DeepMind)
- Using ML algorithms against best game players in the world Go game
- Dota2 vs professional players
- Neural networks painting in style of Van Gogh
- Image extrapolation using Deep learning
- Lipsyncing Obama



Recurrent neural networks

Some demonstrations

- Emojini 3000
- Google neural network playground
- Neural network on your browser (by Google)
- Quickdraw (by Google)
- Other experiments by Google

Machine learning is for everyone!
Don't be afraid to try it out!

