
GDG Thessaloniki
F.R.I.D.A.Y.
Build your own personal assistant
Machine Learning with Voice Integration

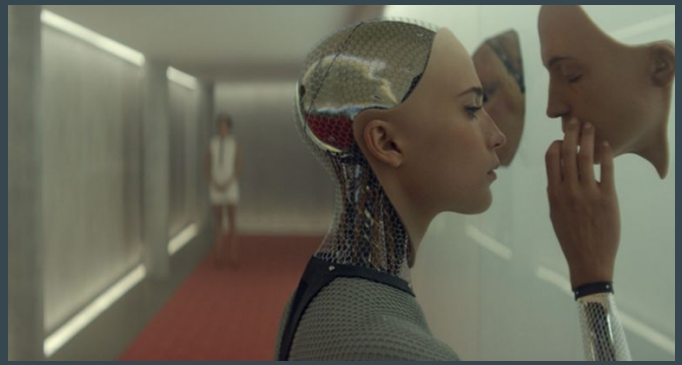
# Who we are

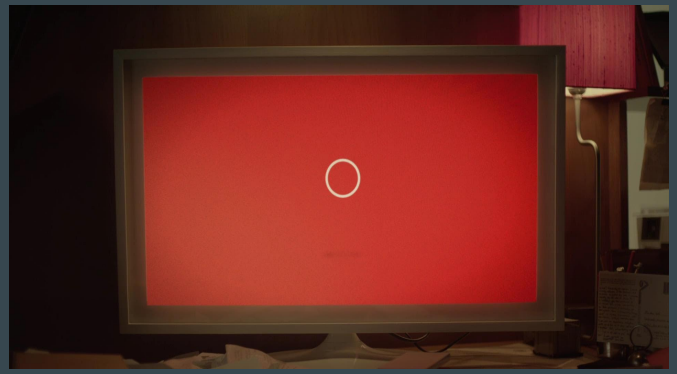
George Kortsaridis | Christos Melidis

## Where we are
## i4G

AI | Voice Assistant | Working prototype

# “I know what AI means... I think”





# “I know what AI means… I think”

# “I know what AI means… I think”

**Intelligent behavior in an autonomous agent** — THIS is AI.

AI research is leading toward something more advanced: **artificial general intelligence, or AGI**.

# Artificial General Intelligence (AGI) is the intelligence which can be as intelligent as human beings.

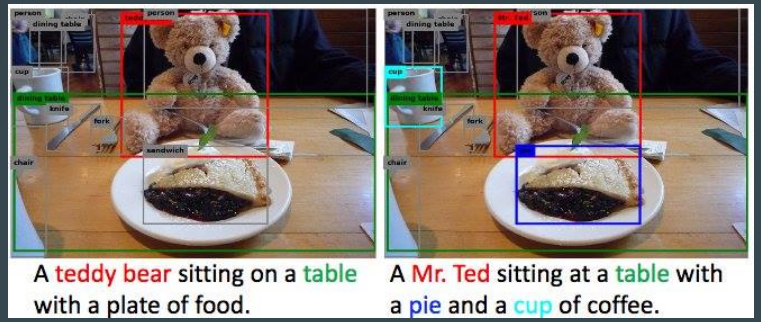
- **reason**, use strategy, solve puzzles, and make judgments under uncertainty;
- **represent knowledge**, including commonsense knowledge;
- **plan**;
- **learn**;
- **communicate** in natural language;
- and integrate all these skills towards common **goals**.

# Tests for confirming human-level AGI

- The Turing Test (Turing)
- The Coffee Test (Wozniak)
- The Robot College Student Test (Goertzel)
- The Employment Test (Nilsson)
- The flat pack furniture test (Tony Severyns)

# What we have in place today, Weak AI

AI to solve specific problems




# 85%

Of customer interactions are projected to be managed without a human by 2020.

# 31B

Installed base of IoT devices worldwide by 2020

# $11T

Economic impact of the IoT by 2025, according to estimations by the McKinsey Global Institute

3,327

Number of AI companies listed on Crunchbase

$5B

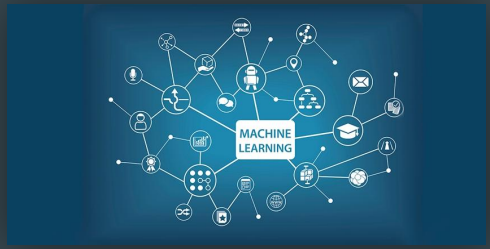
Amount venture capital firms invested in AI-related firms in 2017

$37B

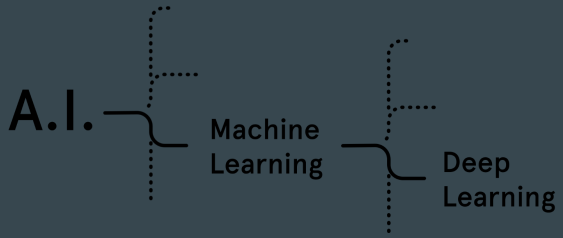
Amount of total spend in AI by 2025

# Buzzwords

Machine Learning




Deep Learning




Natural Language Processing

Context Awareness

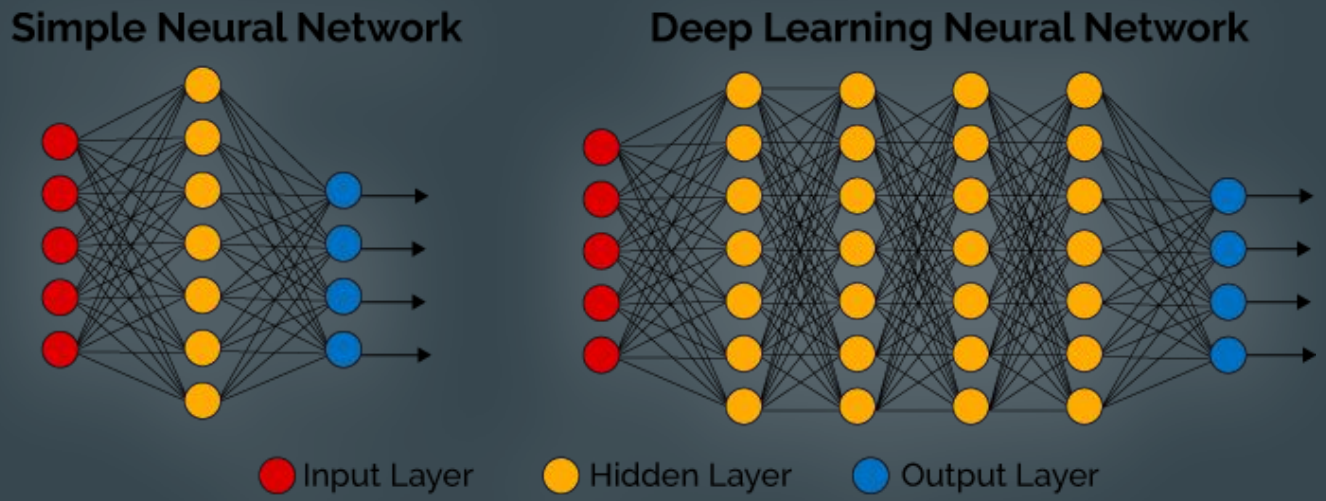
# Machine Learning

**Supervised Learning**
(Input and Output is specified for training)

**Unsupervised Learning**
(Only input is given to recognise patterns)

**Reinforcement learning**
(Real world feedback is provided to system on the go)

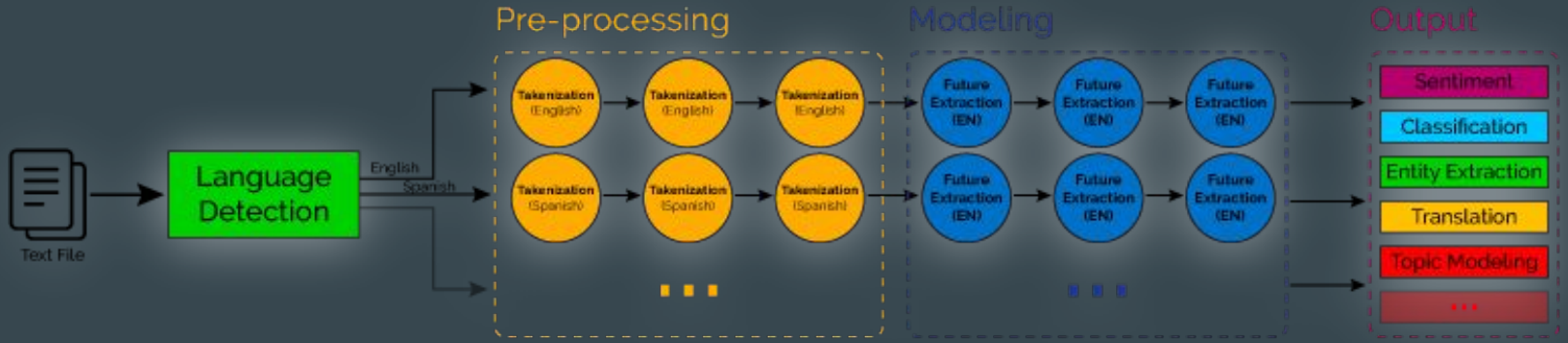
# Deep Learning

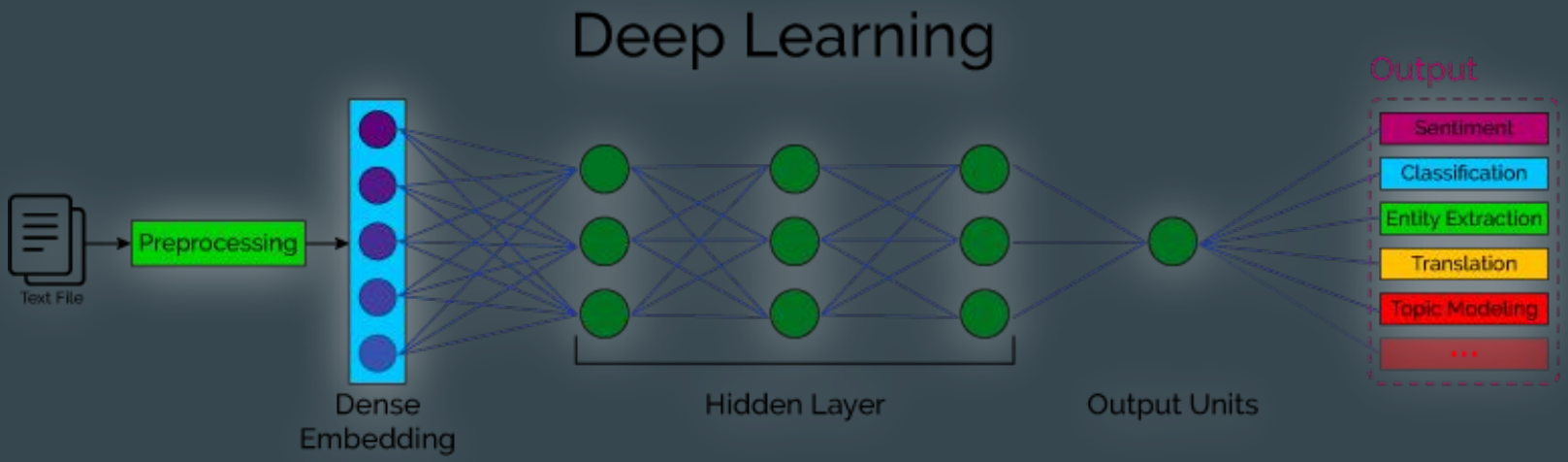



Deep Learning is **a type of Machine Learning** which includes **multiple adjustable blocks** to produce better results.

**Neural networks** is about applying the same rules of human brain to generate intelligence.

# Natural Language Processing



# Context Awareness

**Adaptation**,
**filtering** of information, invocation of additional services, and deactivation of service components

**Personalization**,
**adapt** an application **to different persons**, such that they perceive the application differently at the same time

**Proactivity**,
delivering services to the user on the basis of **predictions** of future context information

# Trends

## Rise of Voice Commands in Assistants

As the quest for natural language communication continues, speech-to-text technology has improved immensely.

**Siri**

**Amazon Echo**

**Google Home**

# Trends

## Content as a Testing Ground

In order to get smarter, **AI** requires **lots of data**, **patterns** and **new situations**.

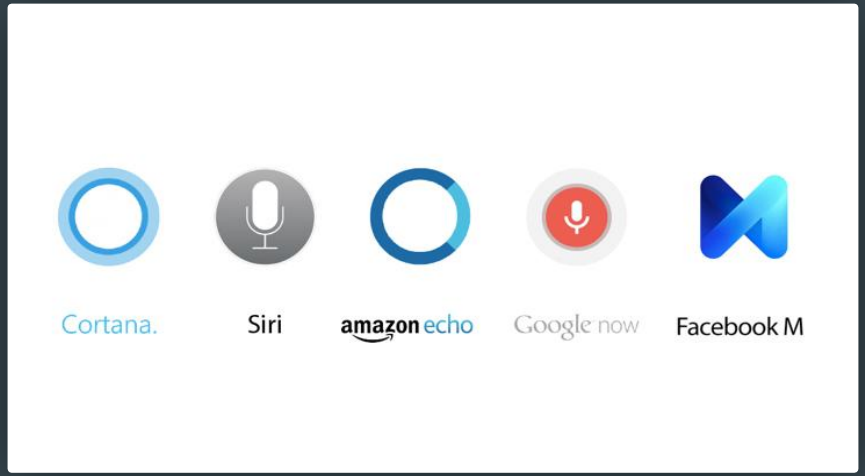
Users' consumption patterns are already being shaped by the machine learning behind Spotify's "Discover Weekly", Netflix's "Recommended For You" and Facebook's ability to keep you in a filter bubble of your own making.

# Trends

## AI is learning to be less biased

When a group of scientists recognized that their **AI** was **replicating** the **human bias** (think: “man : computer programmer :: woman : homemaker”) — they broke down the origins of bias and fixed it.

# Intelligent Personal Assistants - IPA



# Intelligent Personal Assistants - IPA

Speech-To-Text [**STT**]
Natural Language Processing [**NLP**]
Artificially Intelligent [**AI**]

# Break

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Time for Coffee

# Planning our meetings

## Schedule

| Lab02 | Lab03 | Lab04 | Lab05 |
| --- | --- | --- | --- |
| • In depth AI, NLP, Speech Recognition<br>• Tech to date, 'n' a bit of science,<br>• State of the art solutions | • Data play, getting to know our data,<br>• Data manipulations, setting 'em right, setting 'em straight,<br>• Data driven implementation, getting to know the properties of the data,<br>• Picking the right model,<br>• Coding half solutions, Showing the way forward to an app | • Code code code<br>• Problem solving and assistance | Create and showcase your own device |

# Set our goals, plan, team building

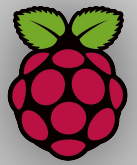
# Play time

Time to make me a

# Tech to be used

Python

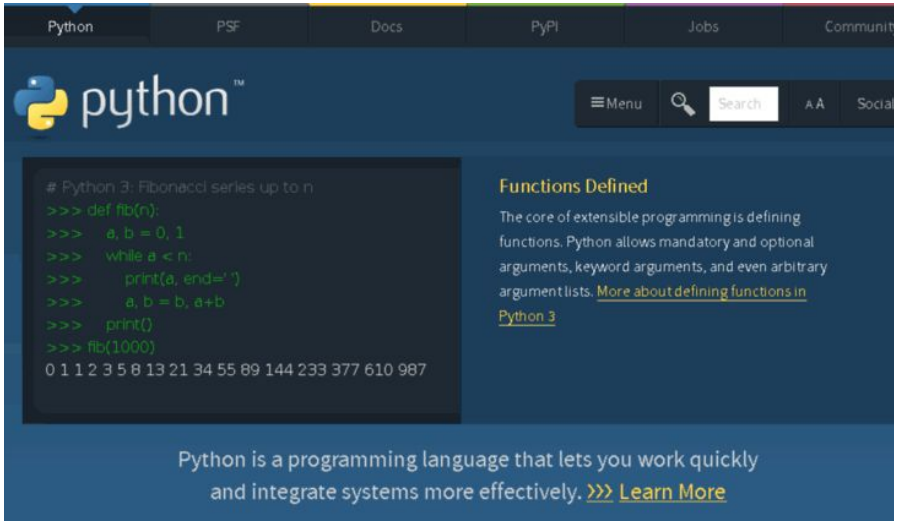
TensorFlow



Raspberry Pi

# Python

https://www.python.org



# TensorFlow

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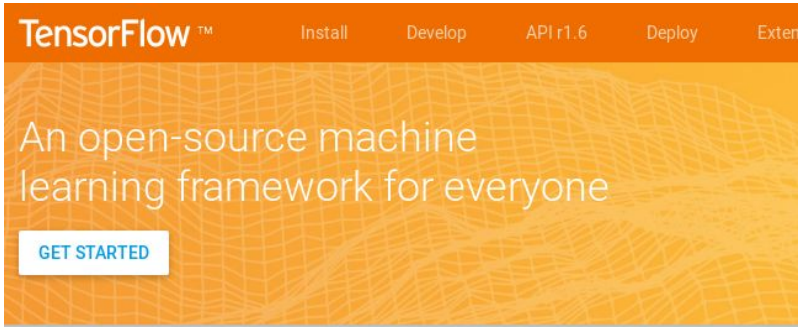

# Raspberry Pi

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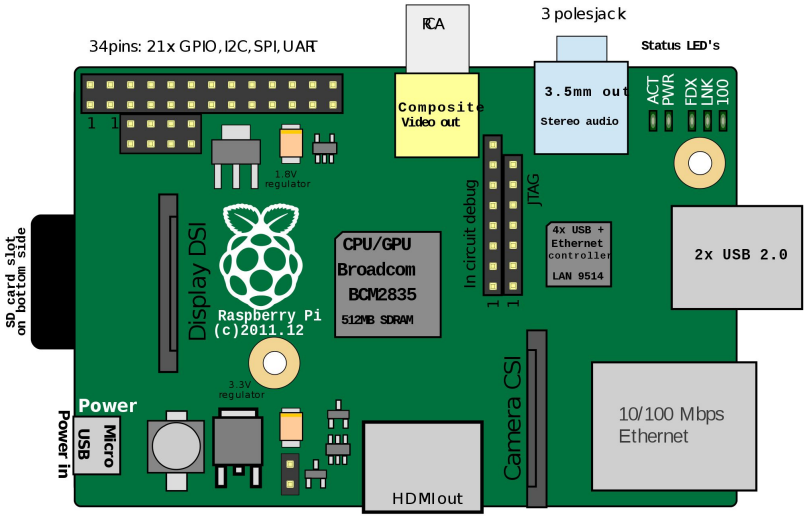
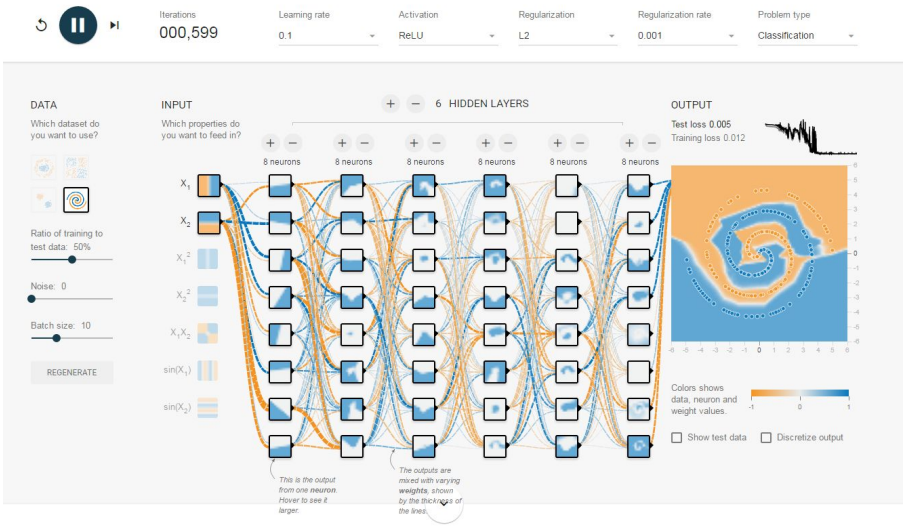


# Online Neural Net play

https://playground.tensorflow.org/



https://github.com/melidisc/AI-Lab