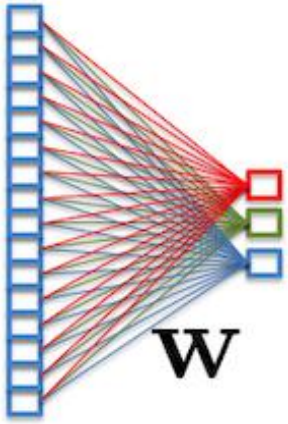
AI and Data Analysis

1.2 History of the field



Christian Wolf

1960s

Alexey Ivakhnenko works on deep neural networks

1986

G. Hinton proposes the backpropagation algorithm in its current form

AI Winter

Vision and speech communities do not use neural networks

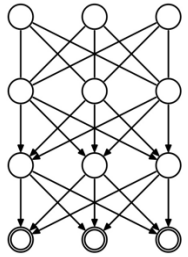
Flat structures dominate

Handcrafted features dominate (SIFT, HoG, LBP etc.)

2006

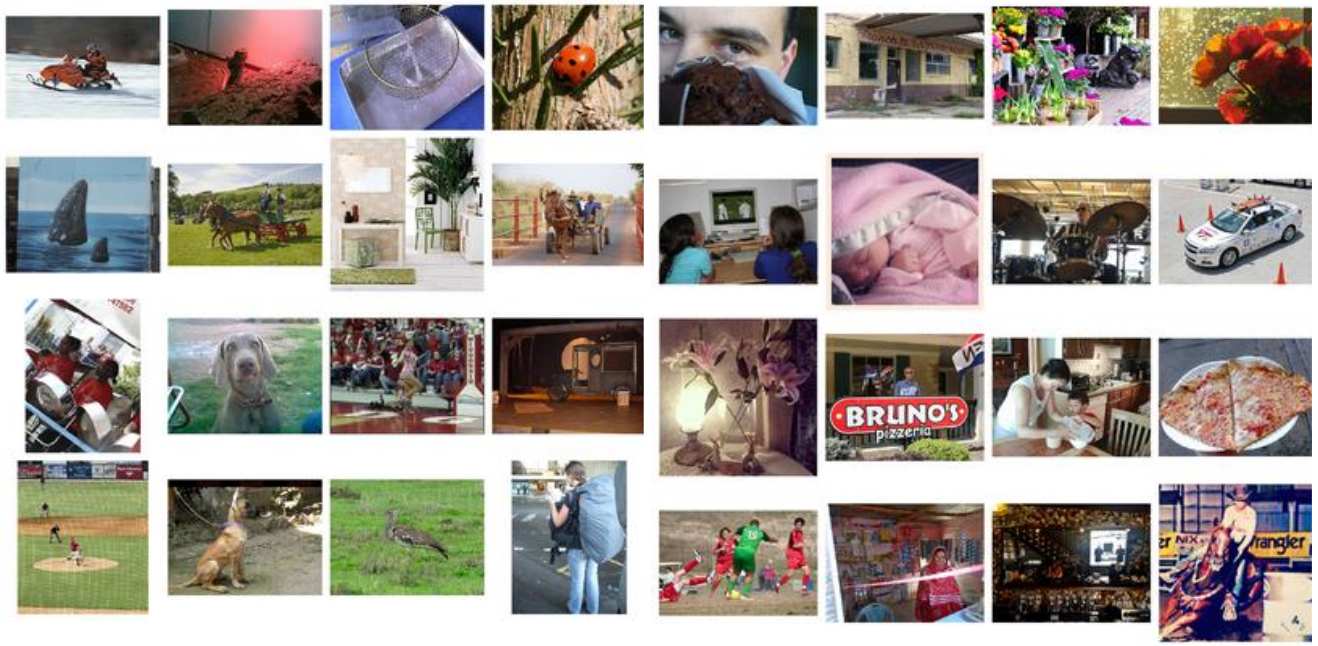
2006

G. Hinton's proposes deep belief networks
Layerwise unsupervised training
GPUs and clusters
Large datasets!



2009

Li Fei-Fei (Stanford) introduces ImageNet, a large scale dataset
1,461,406 annotated images
1000 classes
Manual annotation and careful verification
Crowd-sourcing with Amazon Mechanical Turk



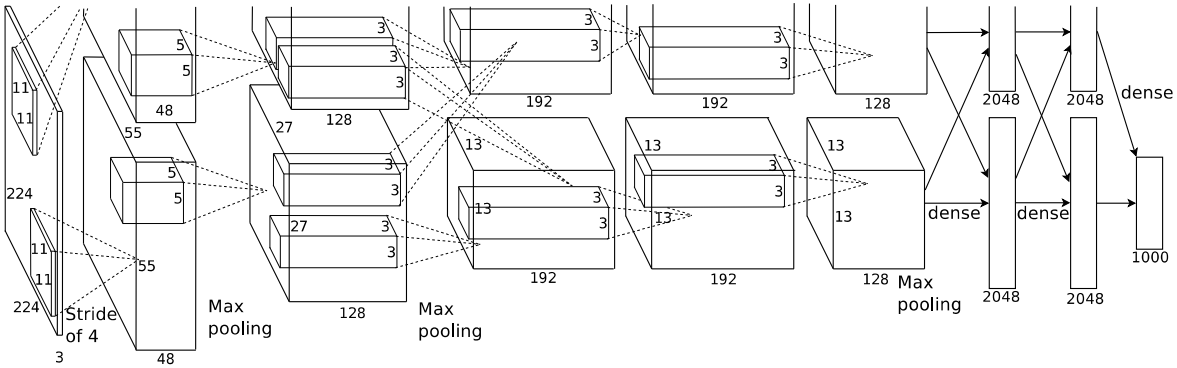
11/2011

Break-through of Microsoft in speech recognition with deep neural networks

10/2012

G. Hinton's group wins ImageNet / ILSVRC

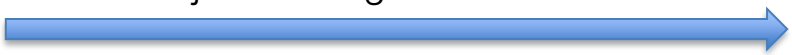
Rank	Name	Error rate	Description
1	**U. Toronto**	0.15315	Deep learning
2	U. Tokyo	0.26172	Hand-crafted features and learning models. Bottleneck.
3	U. Oxford	0.26979	
4	Xerox/INRIA	0.27058	



AlexNet

03/2013

G. Hinton joins Google



09/2013

Clarifai wins ImageNet / ILSVRC (PhD student at NYU)

Classification task:

First 20 entries: deep learning

Rank	Name	Error rate	Description
1	NYU	0.11197	Deep learning
2	NUS	0.12535	Deep learning
3	Oxford	0.13555	Deep learning

Detection task:

Rank	Name	Mean Average Precision	Description
1	UvA-Euvision	0.22581	Hand-crafted features
2	NEC-MU	0.20895	Hand-crafted features
3	NYU	0.19400	Deep learning

12/2013

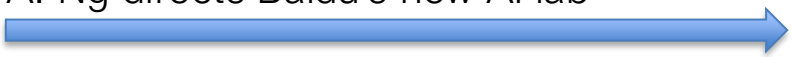
Y. LeCun directs Facebook's new AI lab

01/2014

Google acquires DeepMind for 400M$

05/2014

A. Ng directs Baidu's new AI lab



Baidu

09/2014 Google

Google wins ImageNet / ILSVRC

Classification task:

First 20 entries: deep learning

Rank	Name	Error rate	Description
1	Google	0.06656	Deep learning
2	Oxford	0.07325	Deep learning
3	MSRA	0.08062	Deep learning

Detection task:

Rank	Name	Mean Average Precision	Description
1	Google	0.43933	Deep learning
2	CUHK	0.40656	Deep learning
3	DeepInsight	0.40452	Deep learning
4	UvA-Euvision	0.35421	Deep learning
5	Berkley Vision	0.34521	Deep learning

09/2014

Hinton NIPS paper mentions internal google dataset with 100 000 000 labelled images and 18 000 classes

04/2015 — Clarifai acquires 10M$ venture capital

12/2015 — Microsoft research wins ImageNet 2015

12/2015 — Google introduces its deep learning and cloud based « vision API »

12/2015 — Creation of « Open AI », non-profit organisation on AI. Director: Ilya Sutskever (worked with Hinton, Ng, Google)

07/2015-03/2016 — Public perception of deep learning increased; articles appear in « Le Monde », « The NY Times »; Portrait of Yann LeCun on « France 2 », « France Culture » etc.

02/2016 — 

Y. LeCun is nominated at *Collège de France*

COLLÈGE DE FRANCE 1530

03/2016 — Deepmind's AI defeats the best Go players with deep neural networks

3/2017

Event "France IA" with E. Macron, C. Villani etc.

3/2018

The academic conference NeurIPS is sold out in 11 minutes and 38 seconds

2018

Autonomuous driving is an important subject.

Neural Networks are omni-present

Waymo (ex Google)

Tesla

Uber

Toyota

Nvidia

Comma AI

PROMISES! PROMISES! PROMISES!

"Autonomous driving will be solved at the end of the year!"

2018 The Turing prize goes to the Godfathers of deep learning Geoffrey Hinton, Yoshua Bengio and Yann LeCun

2022 ChatGPT completely up-ends the public perception of AI and changes the game.

Google scrambles to catch up.

New actors are founded (xAI, Mistral etc.)

2024 2 Nobel prizes are given on AI (Physics, and Chemistry).

Among the winners: Geoffrey Hinton

Convergence of models