Apresentação de Tendências

Grupo 2 – Deep Learning

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Deep Learning

- INTRODUÇÃO, DEFINIÇÃO E CONCEITOS
- HISTÓRICO
- EXEMPLOS

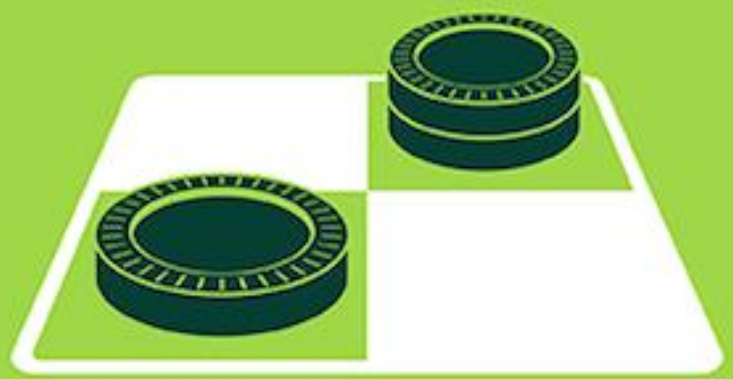
Deep Learning

- É uma classe de algoritmos de Machine Learning
- Seu conceito remonta à 1986 porém o uso desse termo aumentou após os anos 2000
- Andrew Ng Experimento Google

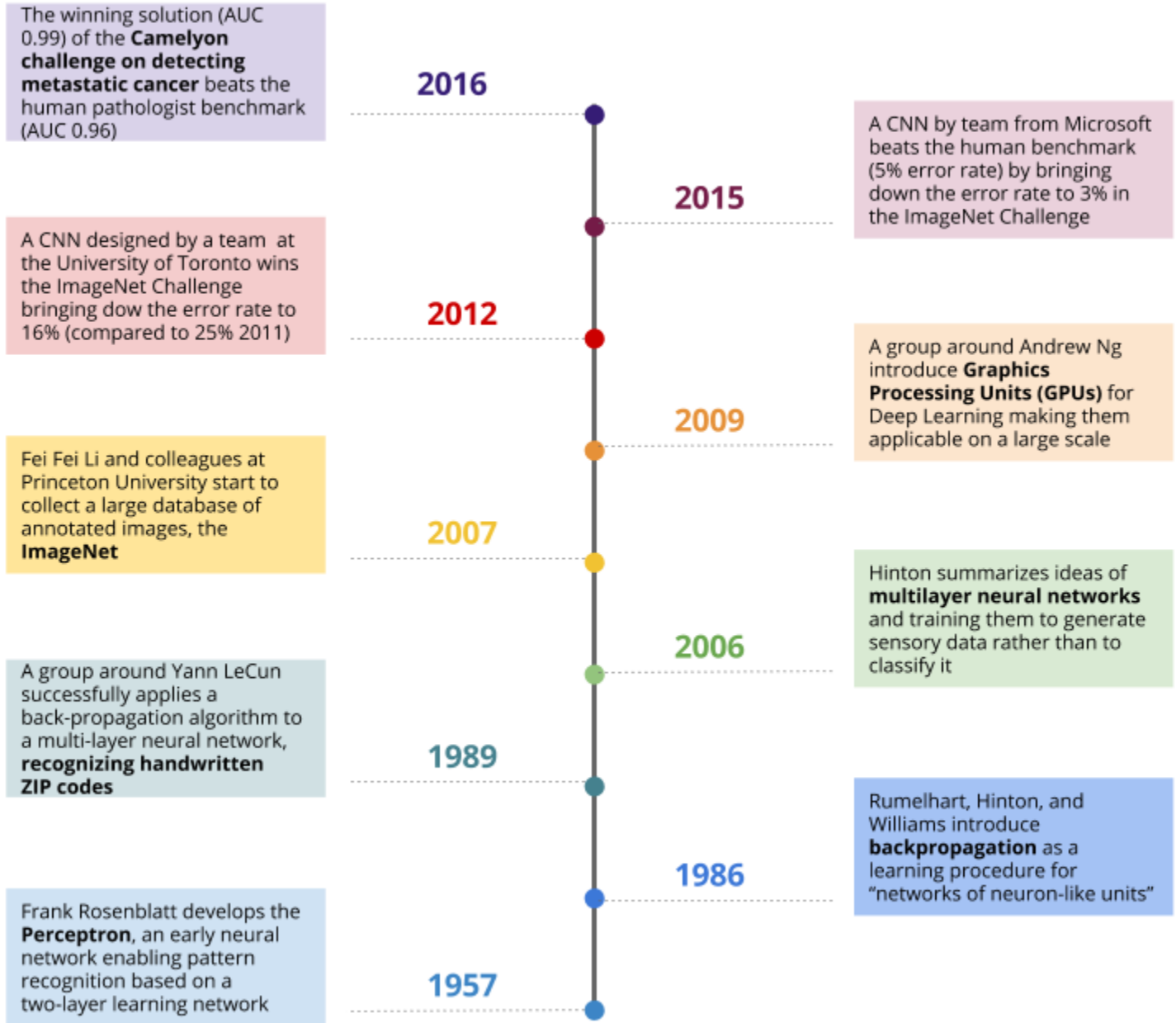
ARTIFICIAL INTELLIGENCE

MACHINE LEARNING

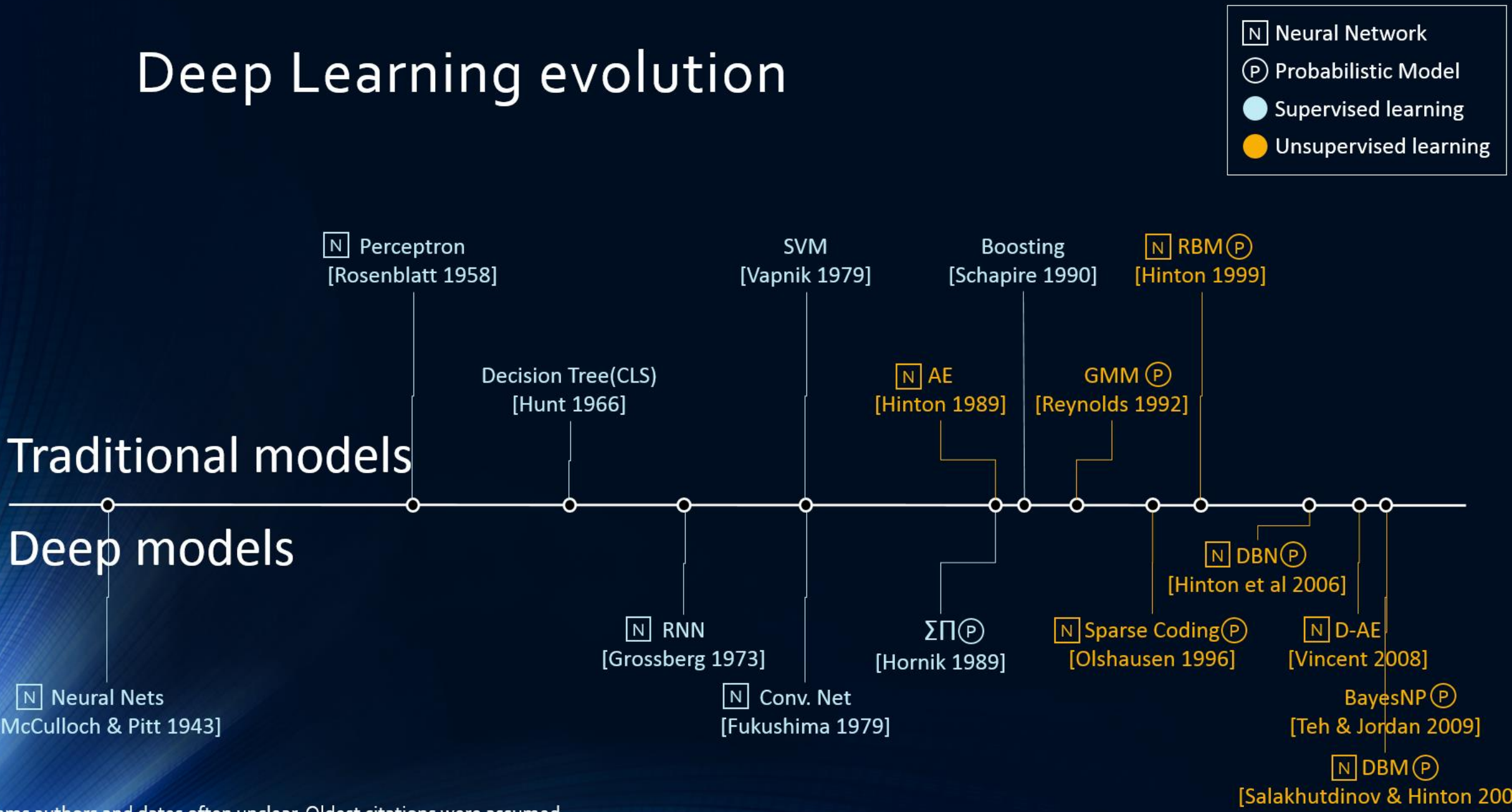
DEEP LEARNING



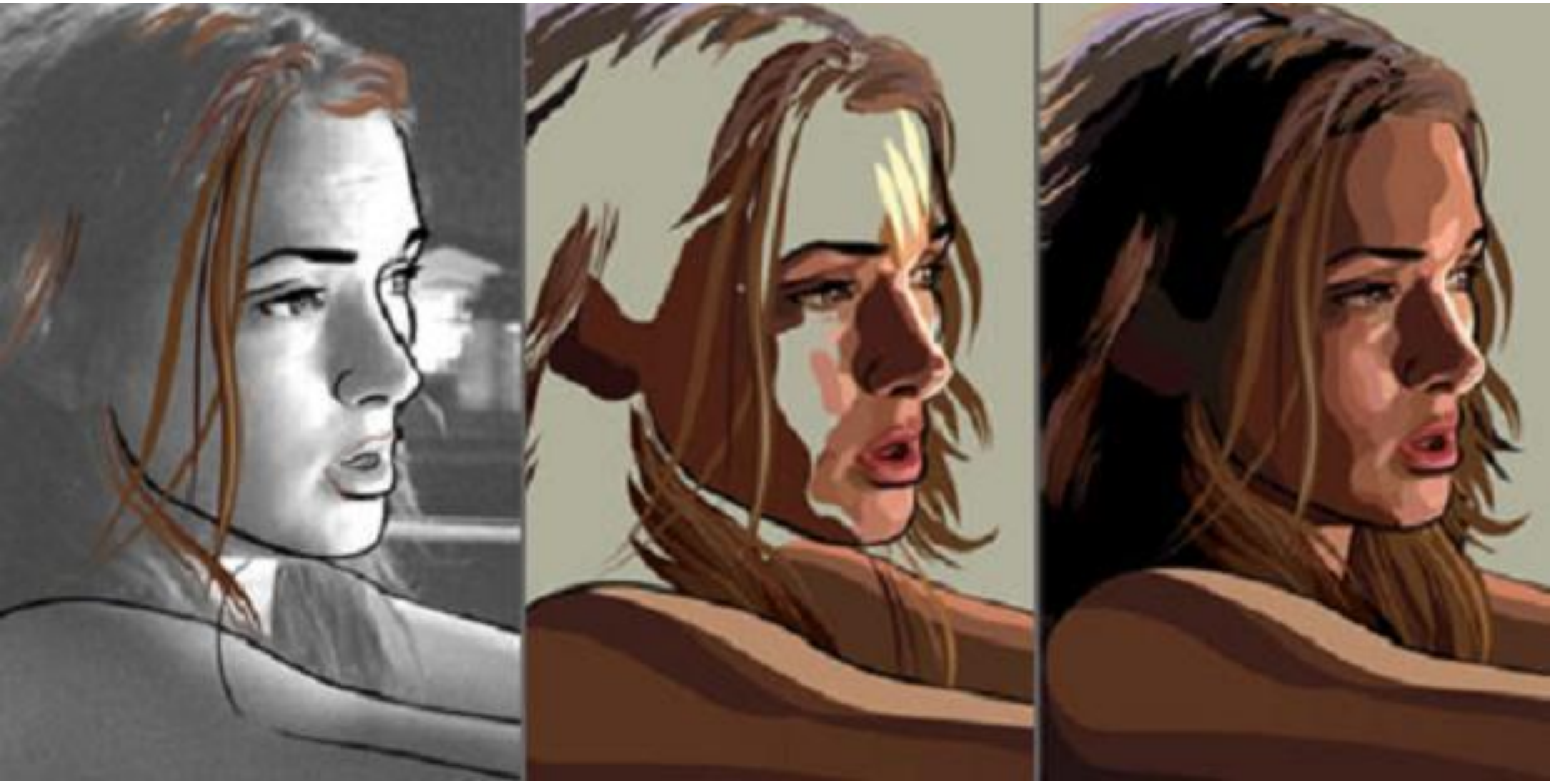
1950's 1960's 1970's 1980's 1990's 2000's 2010's


The winning solution (AUC 0.99) of the **Camelyon challenge on detecting metastatic cancer** beats the human pathologist benchmark (AUC 0.96)
2016
A CNN by team from Microsoft beats the human benchmark (5% error rate) by bringing down the error rate to 3% in the ImageNet Challenge
2015
A CNN designed by a team at the University of Toronto wins the ImageNet Challenge bringing dow the error rate to 16% (compared to 25% 2011)
2012
A group around Andrew Ng introduce **Graphics Processing Units (GPUs)** for Deep Learning making them applicable on a large scale
2009
Fei Fei Li and colleagues at Princeton University start to collect a large database of annotated images, the **ImageNet**
2007
Hinton summarizes ideas of **multilayer neural networks** and training them to generate sensory data rather than to classify it
2006
A group around Yann LeCun successfully applies a back-propagation algorithm to a multi-layer neural network, **recognizing handwritten ZIP codes**
1989
Rumelhart, Hinton, and Williams introduce **backpropagation** as a learning procedure for "networks of neuron-like units"
1986
Frank Rosenblatt develops the **Perceptron**, an early neural network enabling pattern recognition based on a two-layer learning network
1957

Deep Learning evolution



Algorithms authors and dates often unclear. Oldest citations were assumed
Classifications based on Yann LeCun's Deep Learning class at NYU – spring 2014



Referências

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