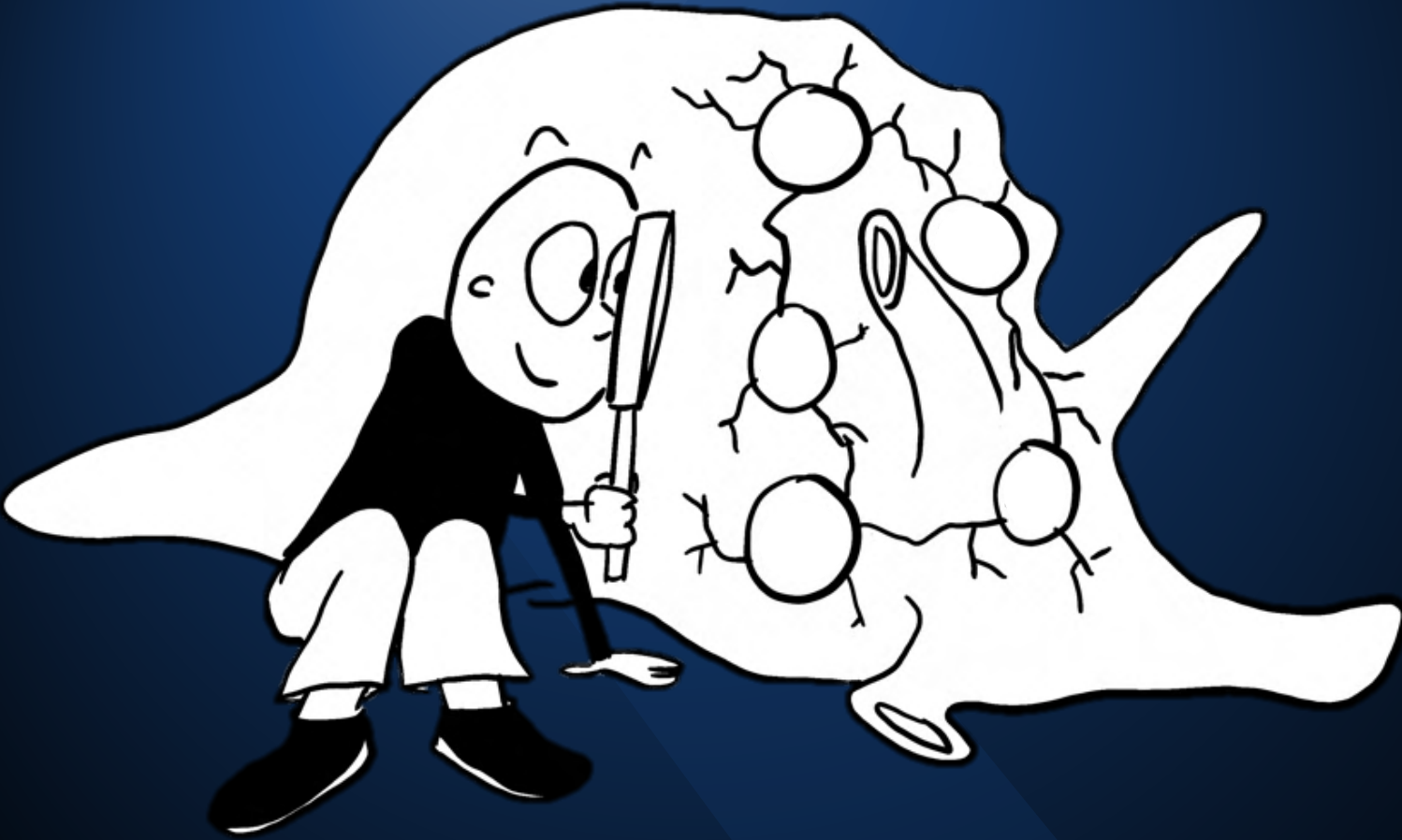


KÜNSTLICHE INTELLIGENZ WO BLEIBT DER MENSCH?

Dr. Boris Nikolai Konrad

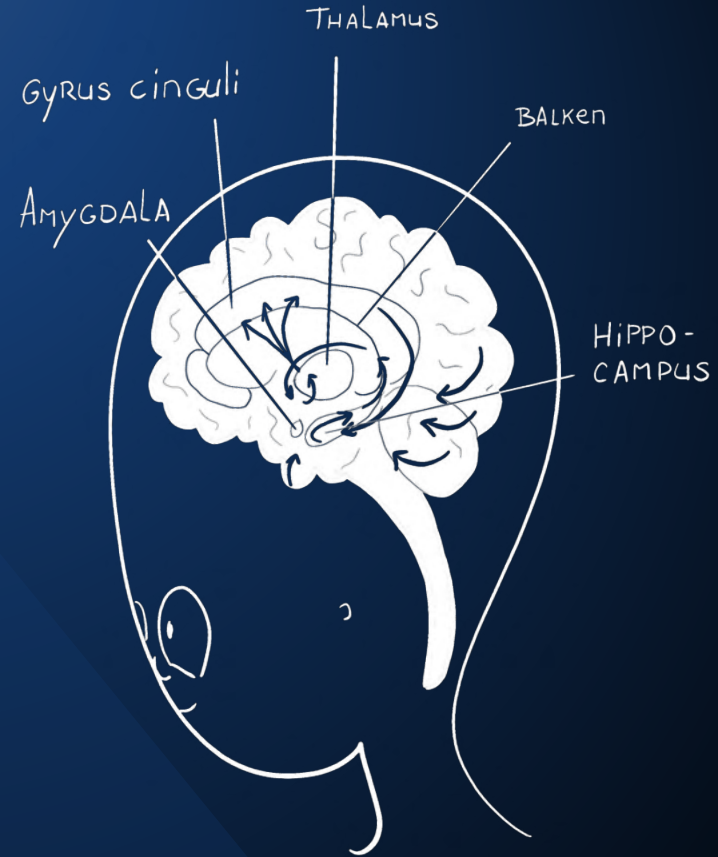




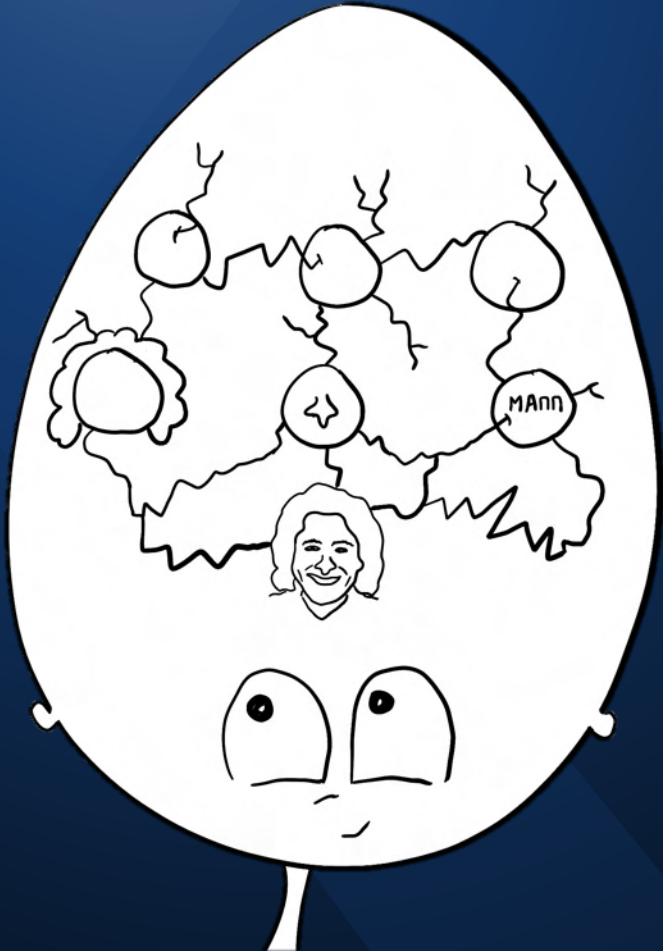
Limbisches System

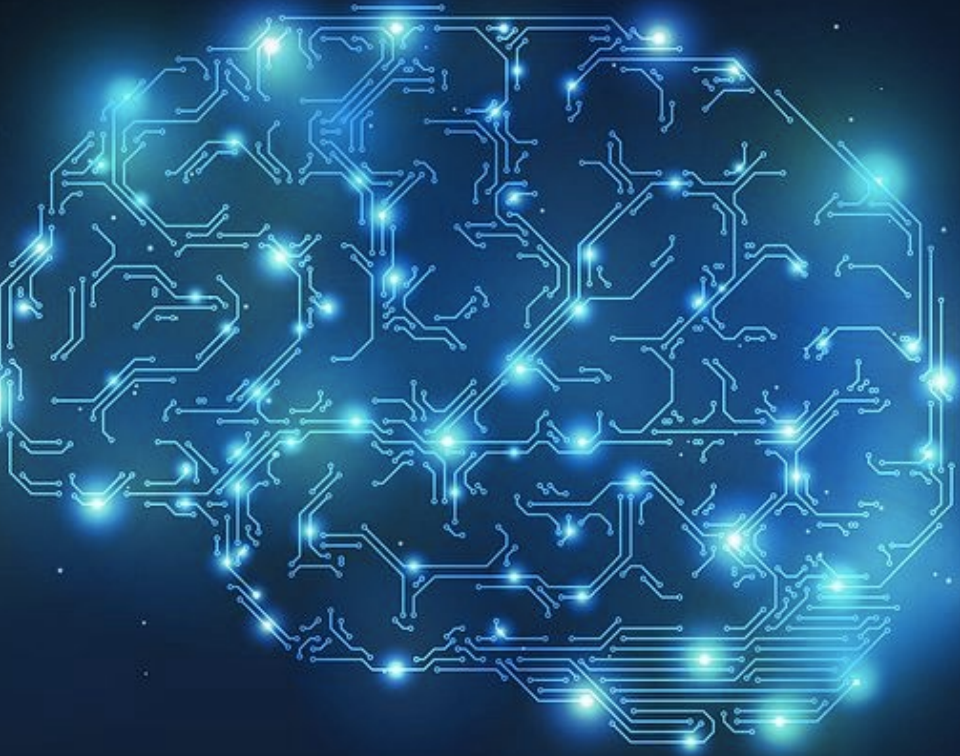
Emotionen

Gedächtnis







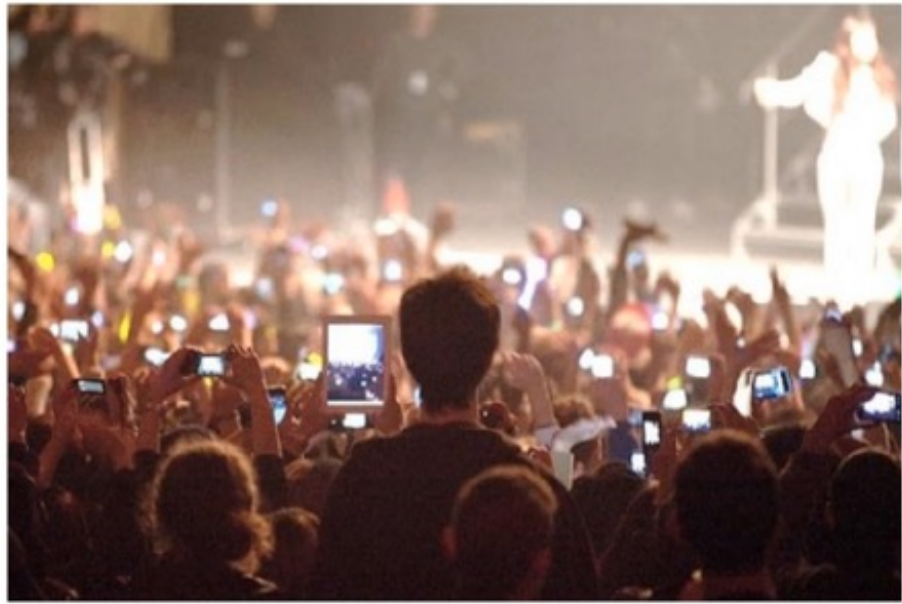


Verändert
die Technik
unser
Denken?

1990s



2010s





MANFRED SPITZER
ÜBER DIGITALE
MEDIEN, 2012

„Das neue Medium macht süchtig. Es schadet langfristig dem Körper und vor allem dem Geist. [...] Wenn wir unsere Hirnarbeit auslagern, lässt das Gedächtnis nach.“



PLATON ÜBER DIE
SCHRIFT,
CA. 350 VOR CHR.

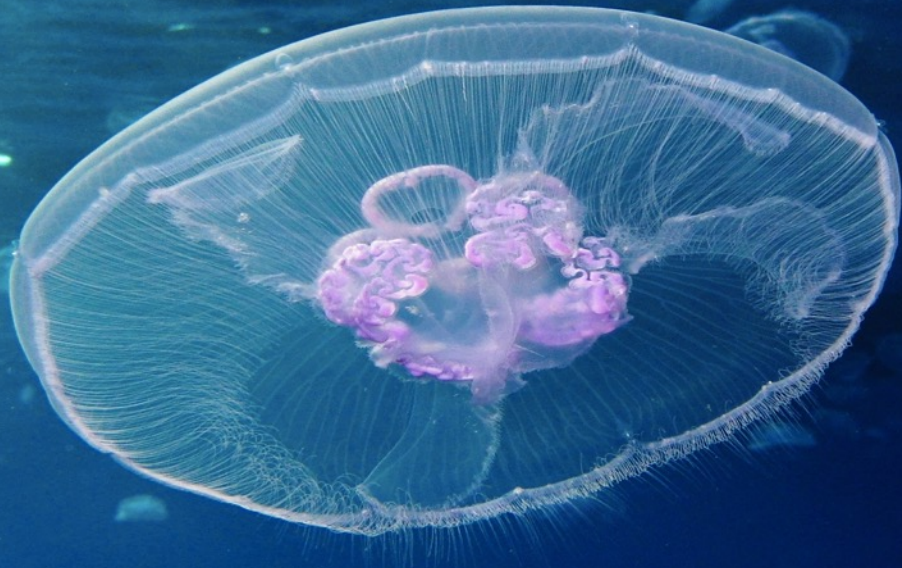
„Das neue Medium ist höchst gefährlich, weil es das Gedächtnis schwächt, [...] von der Realität ablenkt und dazu verführt, Realität und ihr mediales Abbild zu verwechseln.“

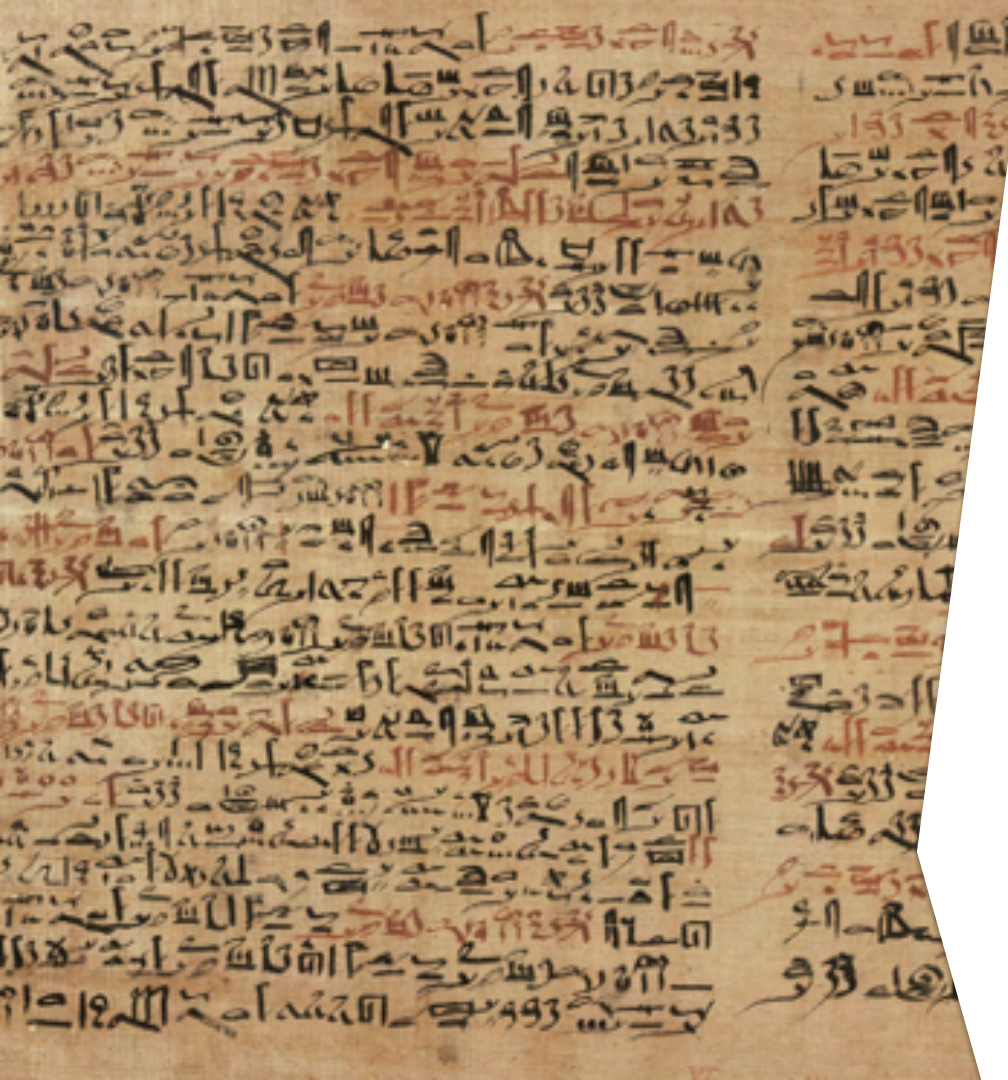
Erste **Nervenzellen** –
650 Millionen Jahre

Erste **Säugetiere** –
200 Millionen Jahre

Erste „**Menschen**“ –
8 Millionen Jahre

Moderner **Mensch** –
0,2 Millionen Jahre





Moderner Mensch – 200.000 Jahre

Einfache Sprache – 100.000 Jahre

Moderne Sprache – 35.000 Jahre

Schrift – 5.000 Jahre

Buchdruck – 500 Jahre

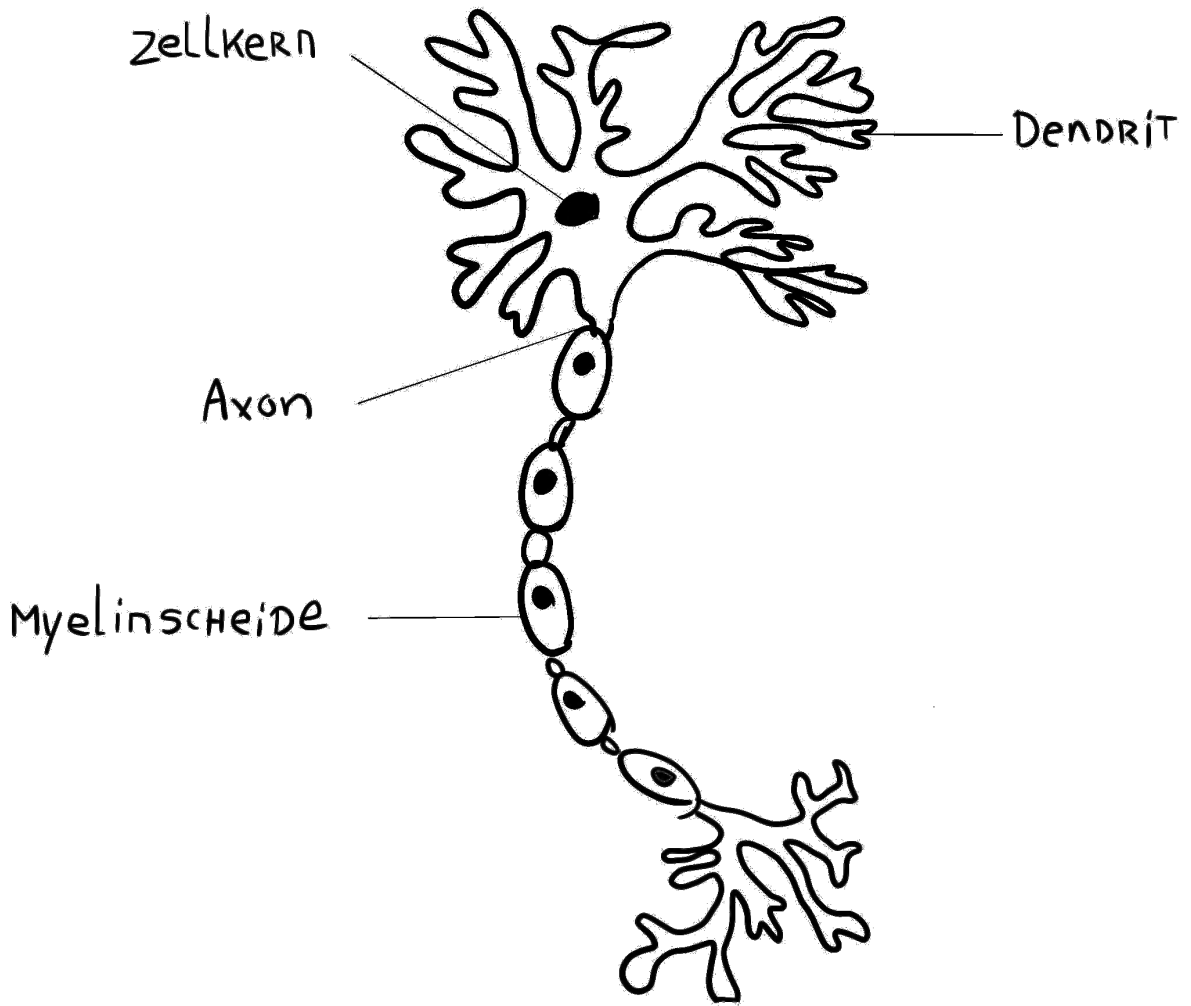


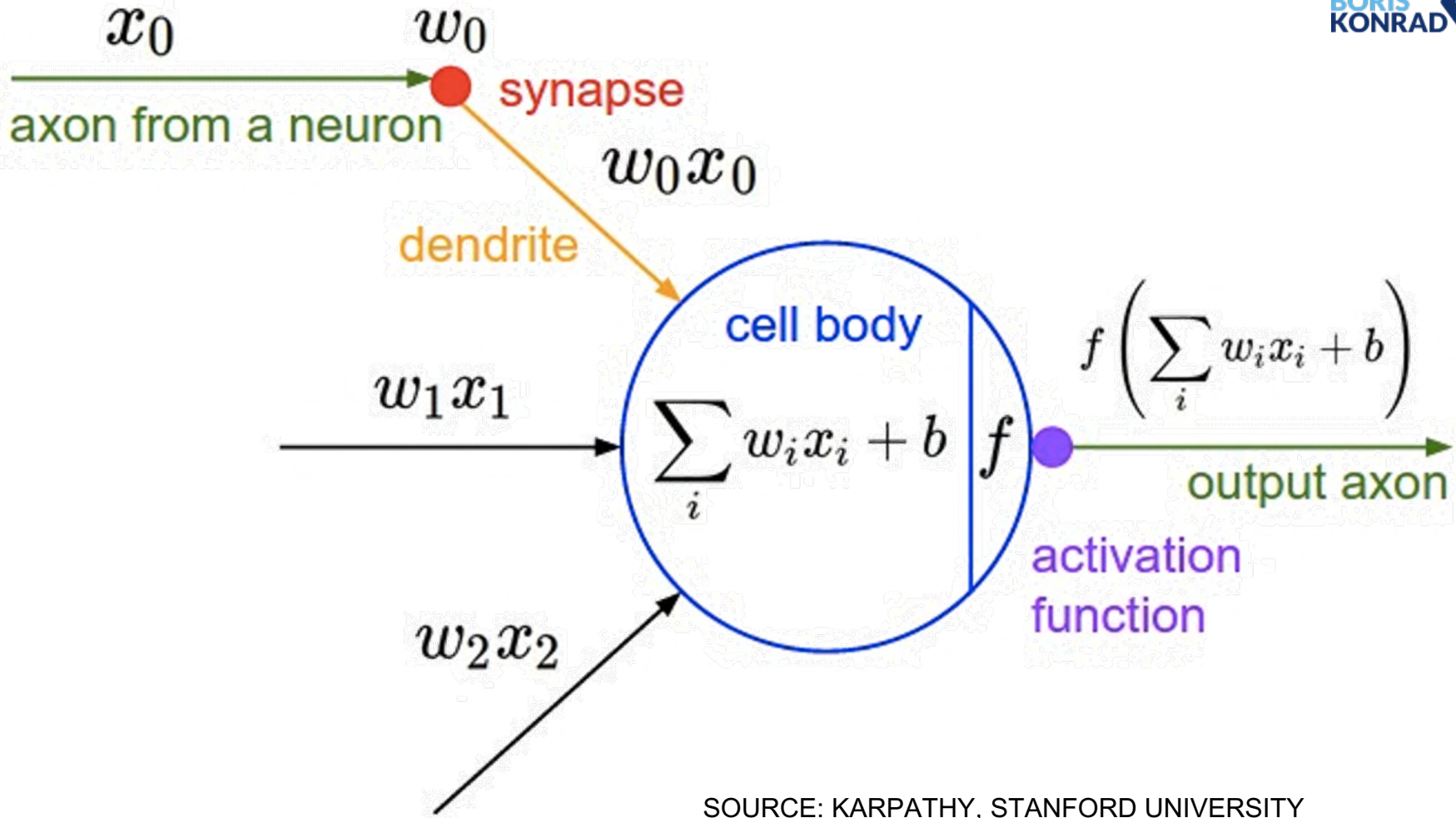
Schwarz-Weiss TV
Tonbandgerät
Transistor
Schaltkreise
Mikroprozessor
PC
CD
Handy
iPhone
Oculus Rift



Künstliche Intelligenz

- **1997** - IBM Deep Blue besiegt Gary Kasparov (Schach)
- **2015** – AlphaGO besiegt den europ. Meister im Go
- **Mar 2016** – AlphaGo besiegt den Weltmeister Lee Sedol 4-1
- **Jan 2017** – Online: 60/0
- **Dez 2017** – AlphaZero (Go, Schach, Shogi)
- **8 Stunden > AlphaGo**





Dermatologist-level classification of skin cancer with deep neural networks

Andre Esteva^{1*}, Brett Kuprel^{1*}, Roberto A. Novoa^{2,3}, Justin Ko², Susan M. Swetter^{2,4}, Helen M. Blau⁵ & Sebastian Thrun⁶

Skin cancer, the most common human malignancy^{1–3}, is primarily diagnosed visually, beginning with an initial clinical screening and followed potentially by dermoscopic analysis, a biopsy and histopathological examination. Automated classification of skin lesions using images is a challenging task owing to the fine-grained variability in the appearance of skin lesions. Deep convolutional neural networks (CNNs)^{4,5} show potential for general and highly variable tasks across many fine-grained object categories^{6–11}. Here we demonstrate classification of skin lesions using a single CNN, trained end-to-end from images directly, using only pixels and disease labels as inputs. We train a CNN using a dataset of 129,450 clinical images—two orders of magnitude larger than previous datasets¹²—consisting of 2,032 different diseases. We test its performance against 21 board-certified dermatologists on

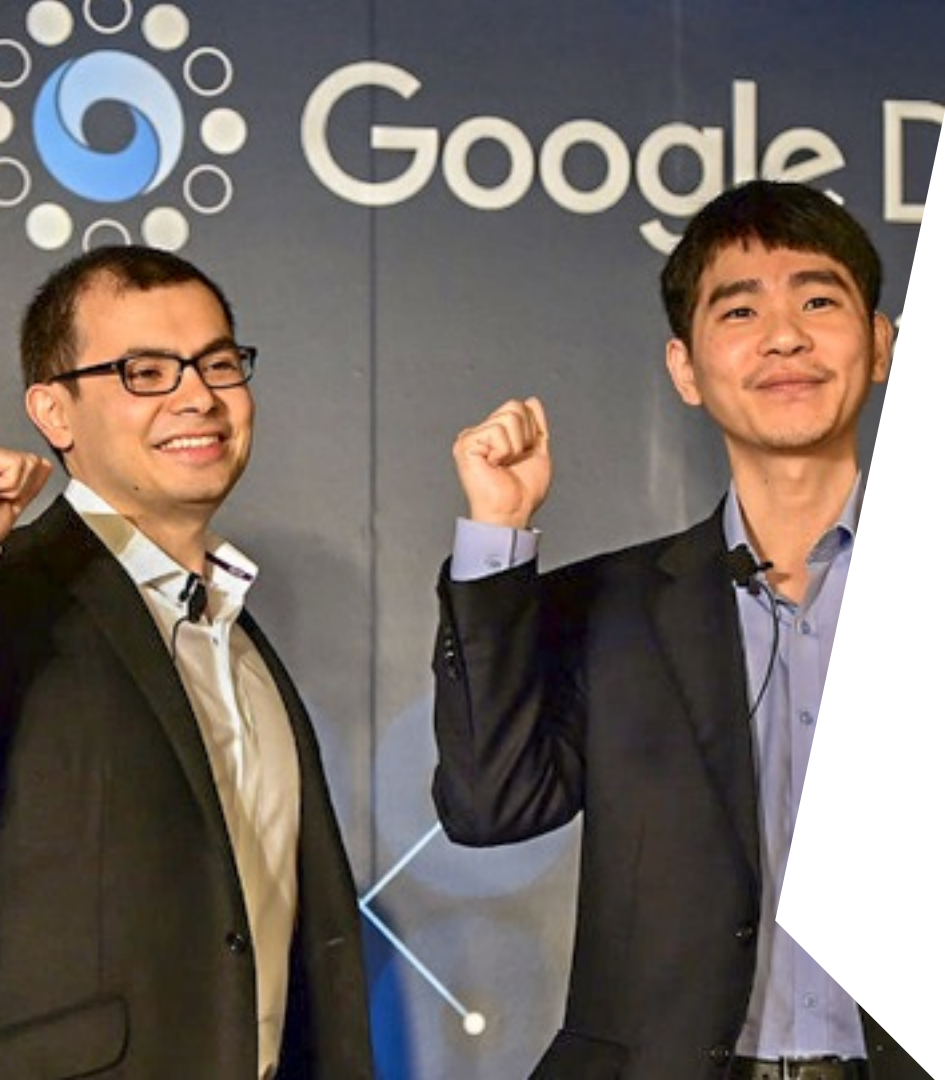
images (for example, smartphone images) exhibit variability in factors such as zoom, angle and lighting, making classification substantially more challenging^{23,24}. We overcome this challenge by using a data-driven approach—1.41 million pre-training and training images make classification robust to photographic variability. Many previous techniques require extensive preprocessing, lesion segmentation and extraction of domain-specific visual features before classification. By contrast, our system requires no hand-crafted features; it is trained end-to-end directly from image labels and raw pixels, with a single network for both photographic and dermoscopic images. The existing body of work uses small datasets of typically less than a thousand images of skin lesions^{16,18,19}, which, as a result, do not generalize well to new images. We demonstrate generalizable classification with a new dermatologist-labelled dataset of 129,450 clinical images, including



KI schlägt Go Spieler –
Go Spieler lernen davon



KI schlägt Ärzte –
Ärzte lernen davon



Das führt nicht zu einer Zukunft in der Menschen von Killerrobotern versklavt werden. **Zumindest nicht in den nächsten Jahren.**





DANKE!

