

Pametni biti

Aljaž Košmerlj

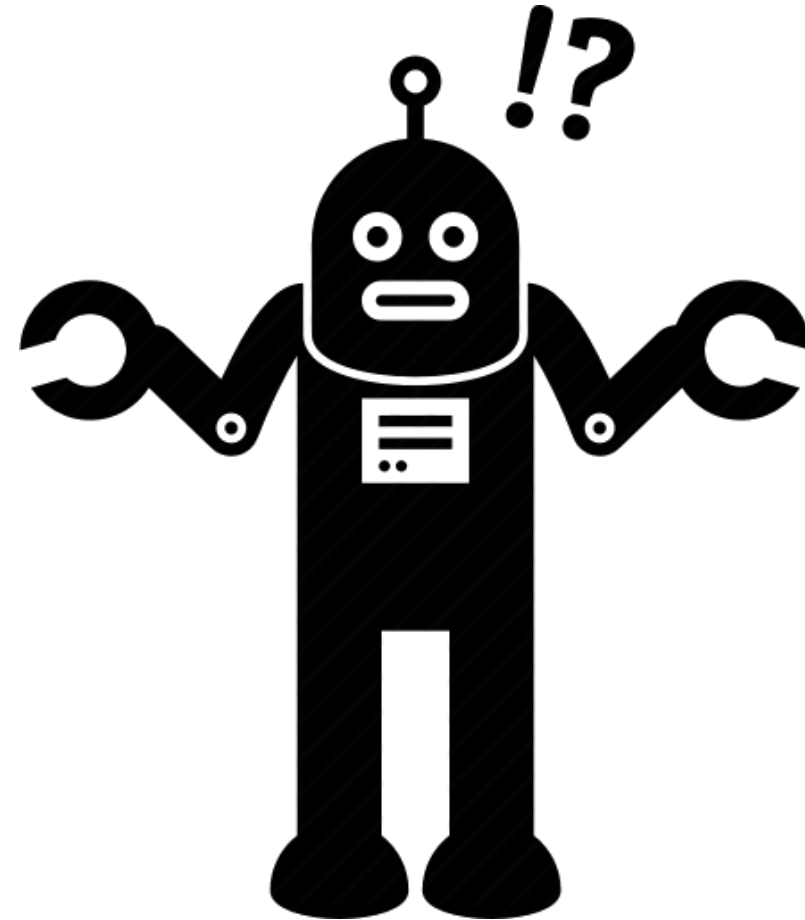
Institut Jožef Stefan
Laboratorij za umetno inteligenco



Umetna inteligenca

*Študij sposobnosti in lastnosti
potrebni za inteligentno delovanje*

- sklepanje
- učenje
- načrtovanje
- zaznavanje
- gibanje in interakcija
- kreativnost
- ...



Zgodovina



- mitologija: antična Grčija (Talos), Kitajska, Indija ...
- 1495: Leonardov robot
- 16. stoletje, Praga: Golem
- 1770: Wolfgang von Kempelen – mehanični Turek
- 1920: Karel Čapek - *Rossumovi Univerzální Roboti*
- 1955: John McCarthy (1956 konferenca v Dartmouthu)

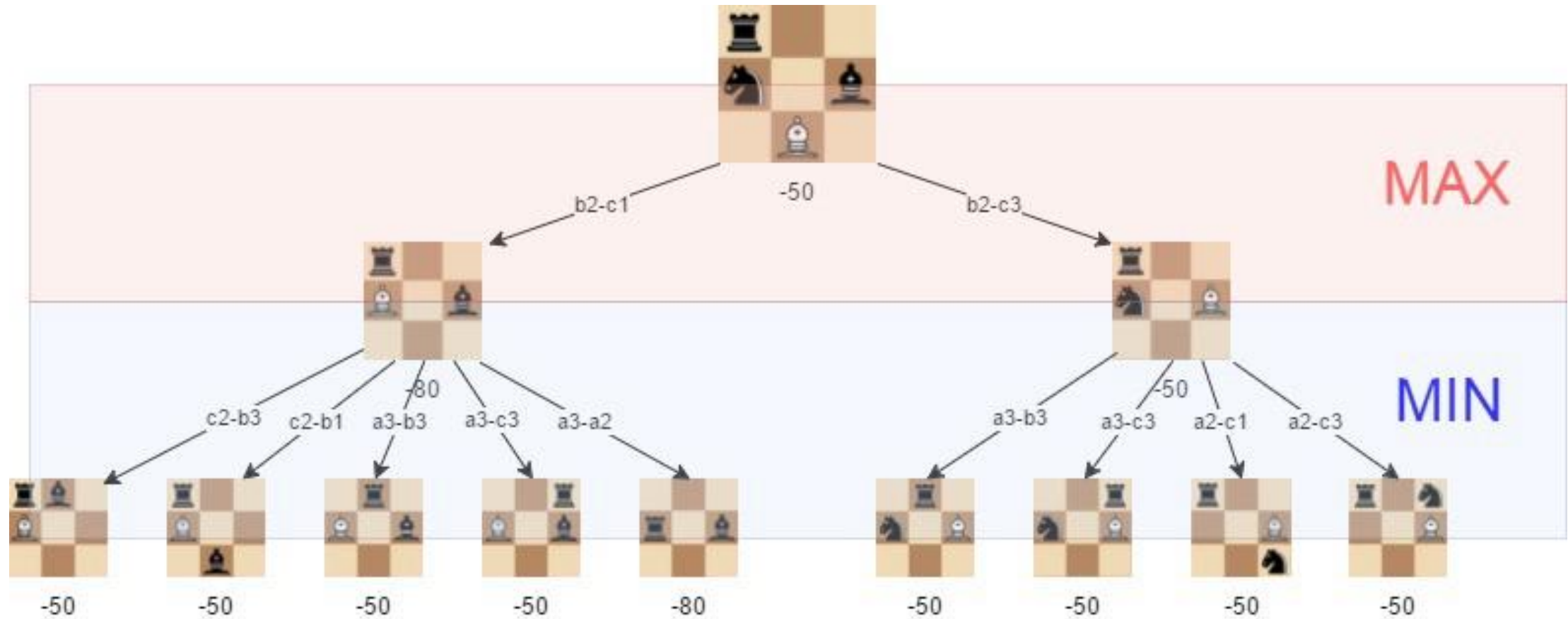


Igranje iger

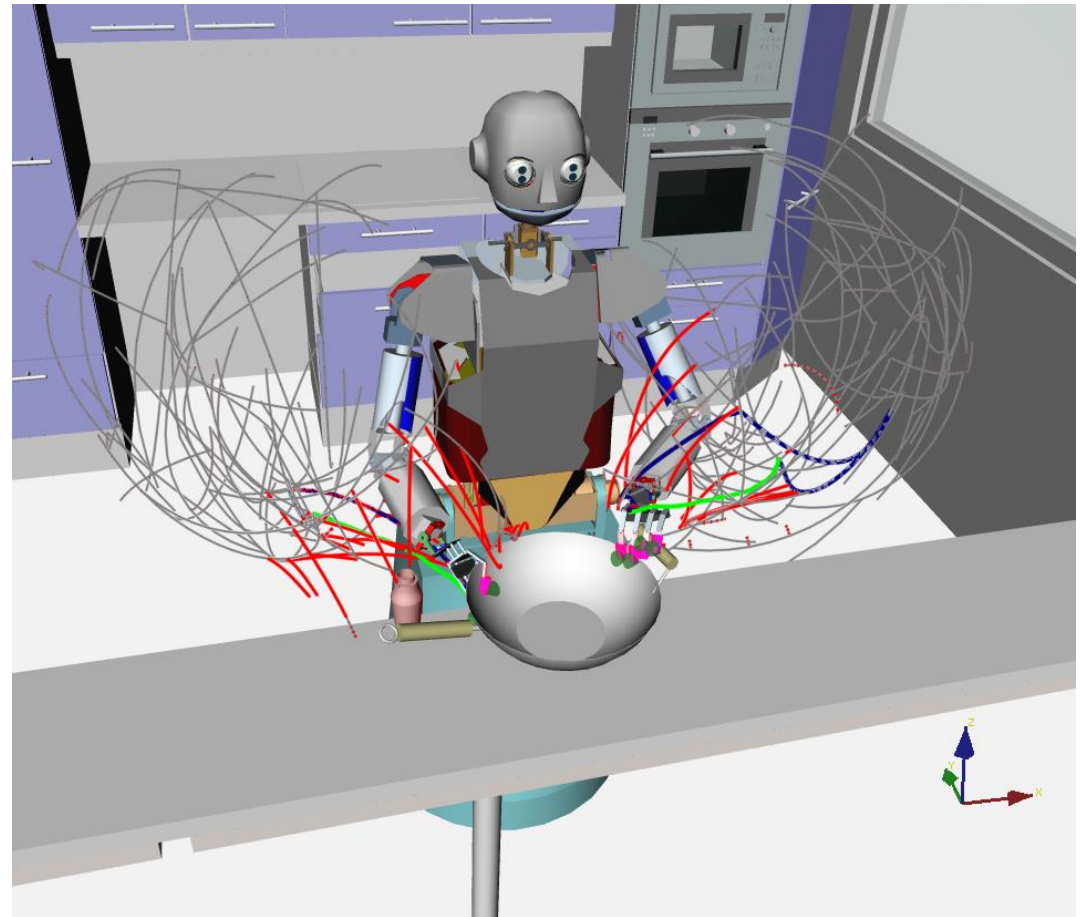
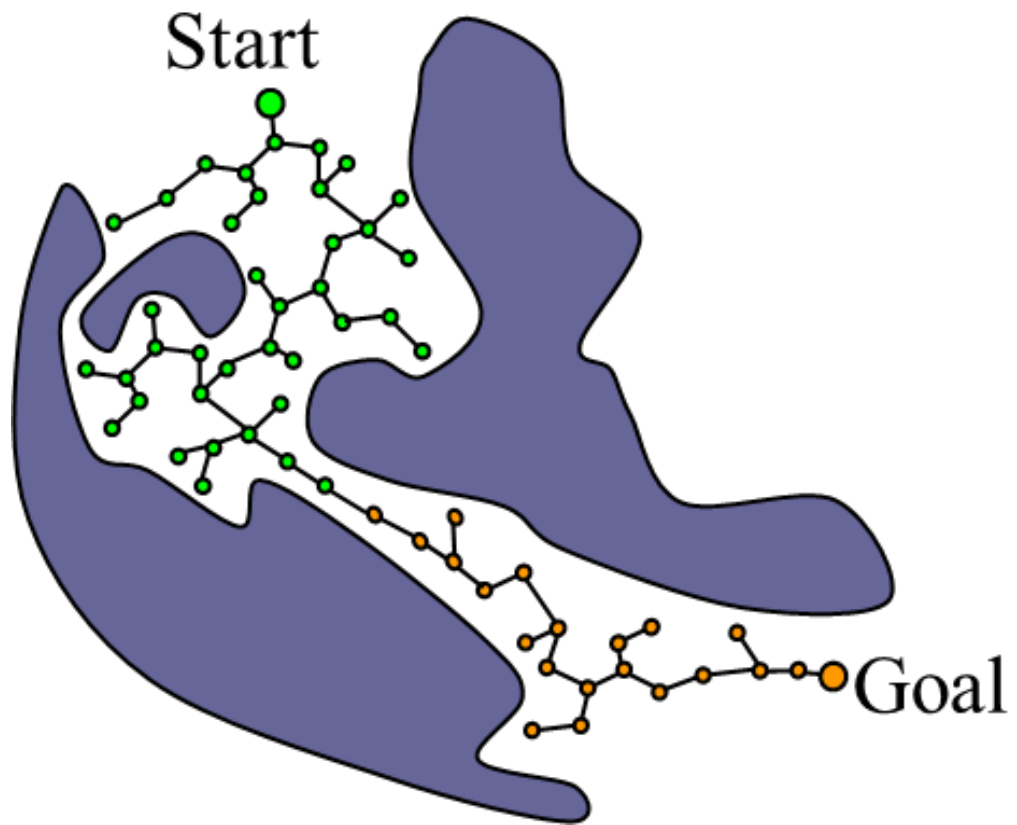
- dama
 - 1994: Chinook vs. Tinsley
 - 2007: igra rešena (Jonathan Schaeffer)
- šah
 - 1997: Deep Blue vs. Kasparov
- go
 - 2016: AlphaGo vs. Sedol



Preiskovanje



Načrtovanje

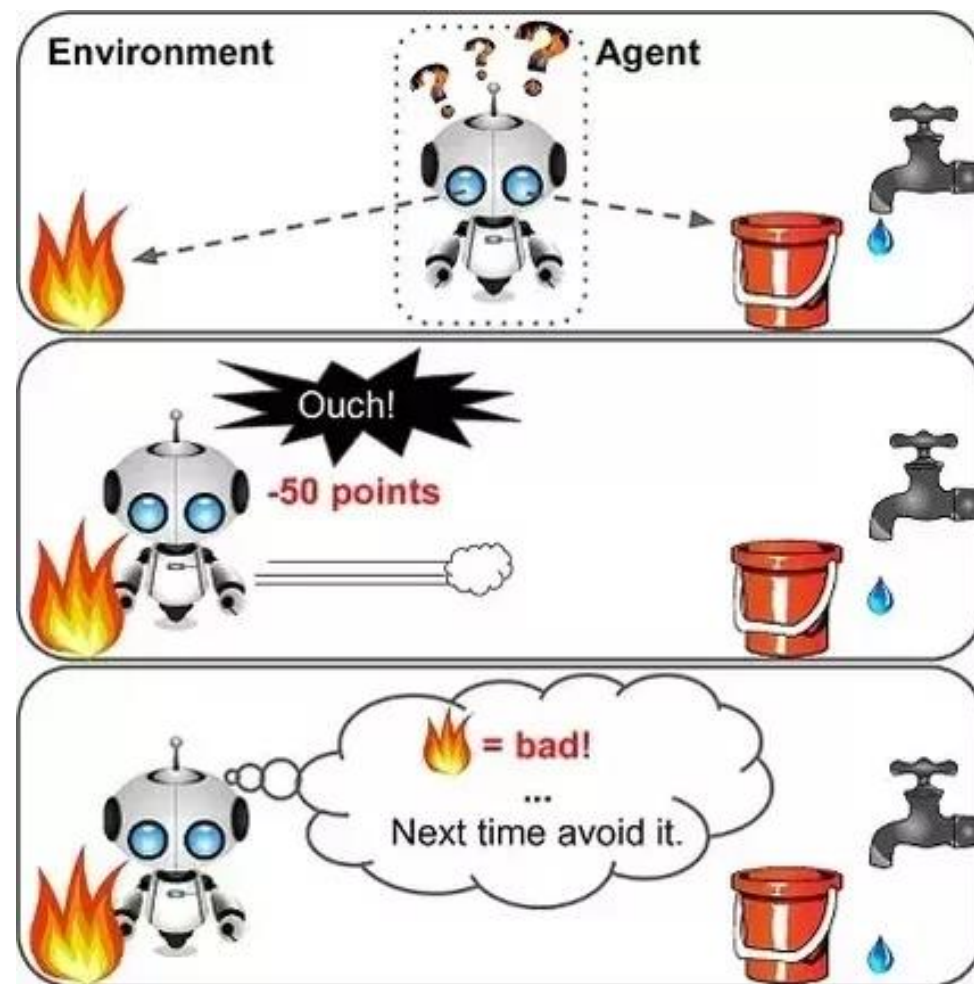


Spodbujevalno učenje



Agent:

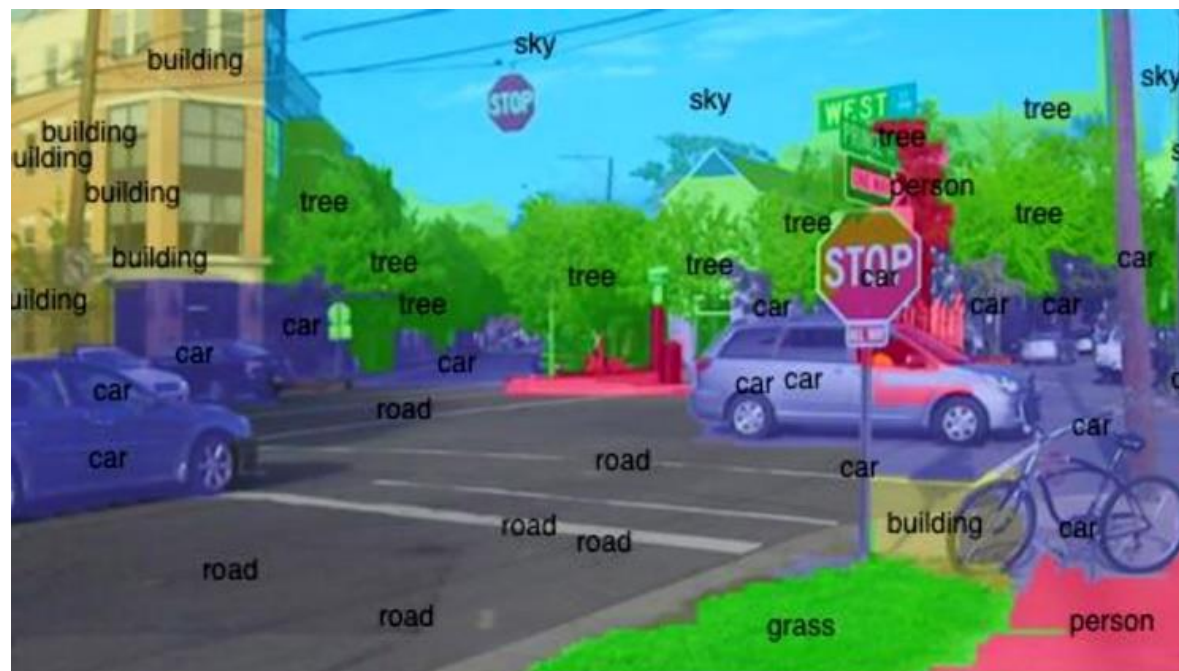
1. preizkusi akcijo
2. opazuje rezultat
3. prejme nagrado/kazen
4. popravi interni model



Računalniški vid



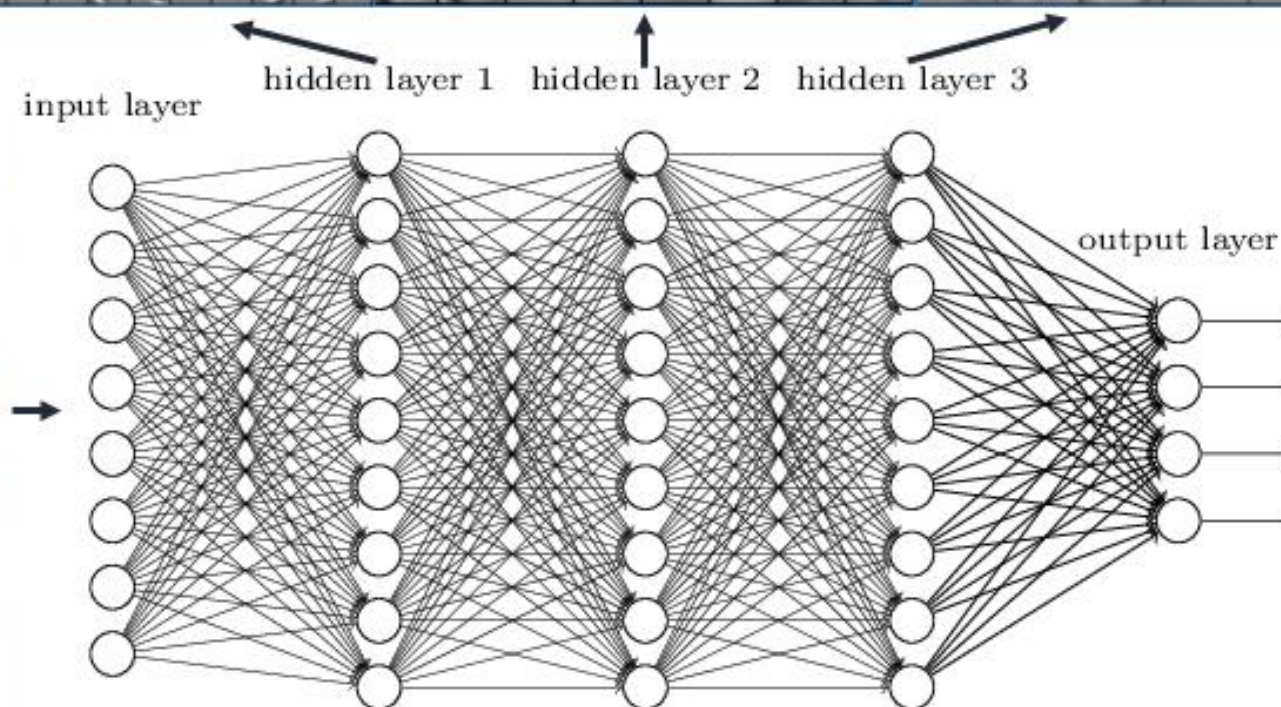
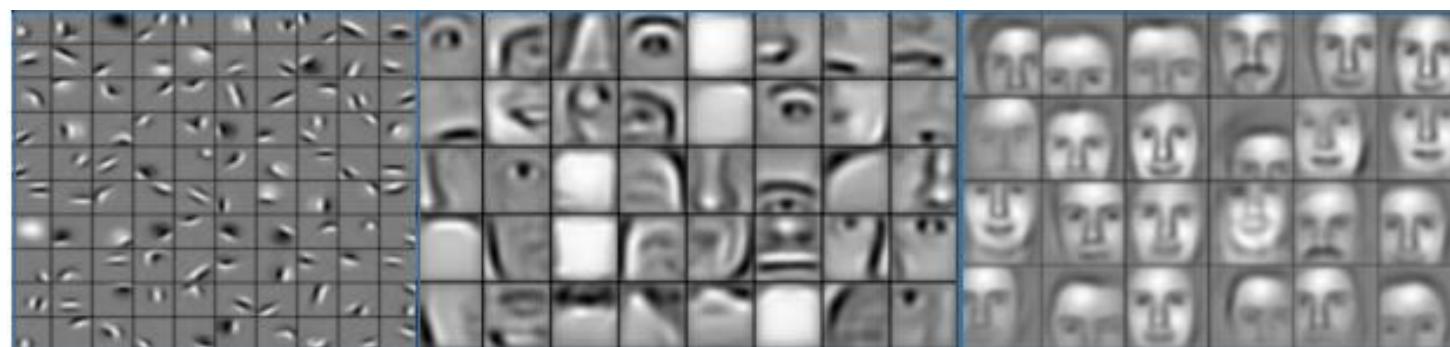
- Kako naj računalniki dosežejo visoko-nivojsko razumevanje slik in videa?
- danes samostojno področje umetne inteligence
- tipično potrebna velika količina označenih podatkov za učenje



Nevronske mreže za vid



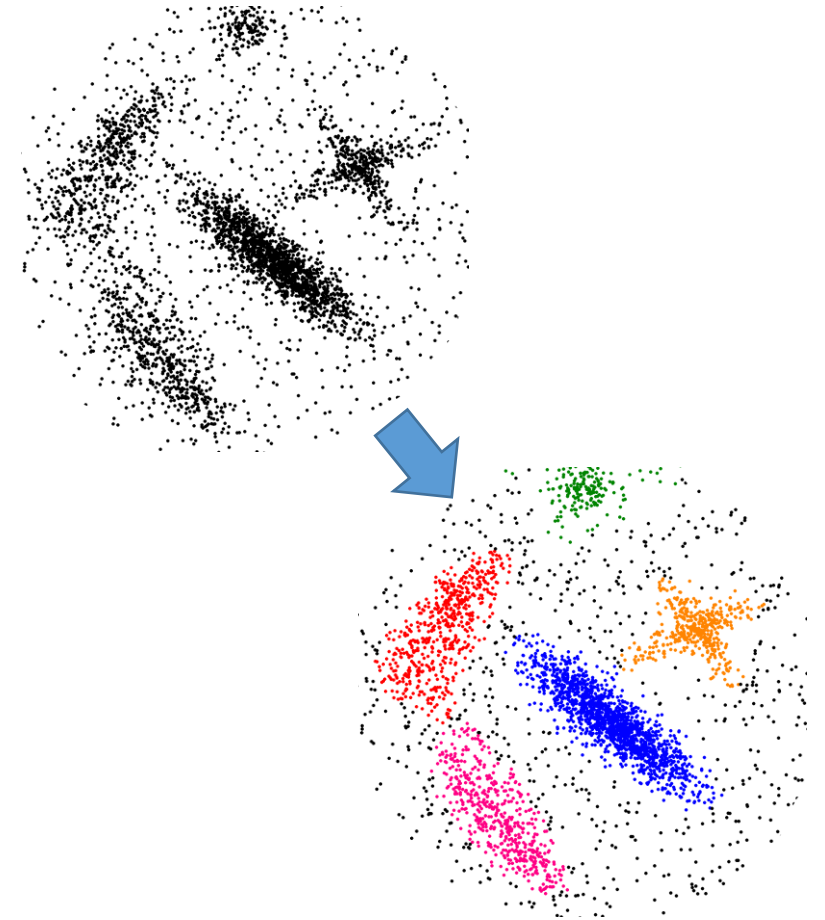
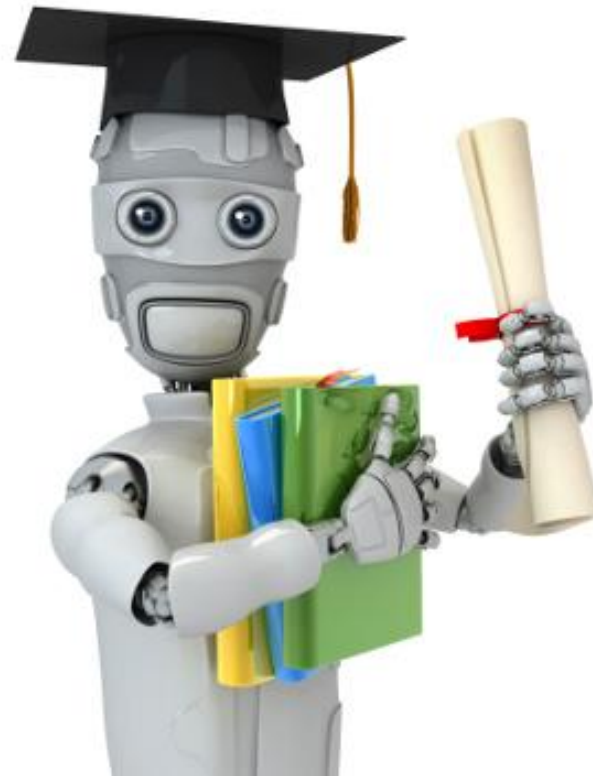
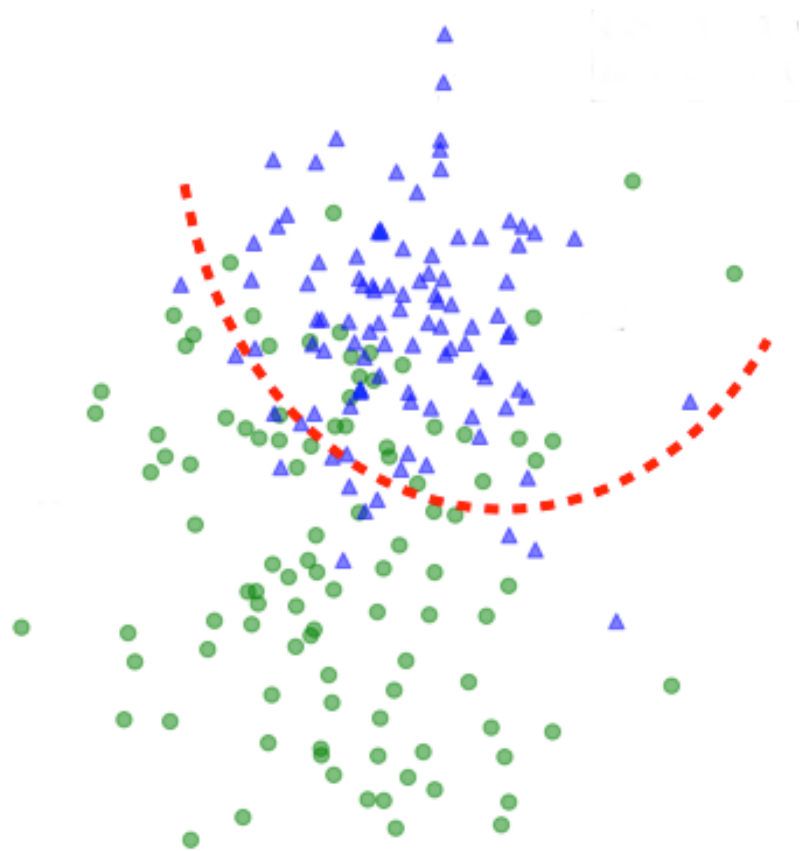
Deep neural networks learn hierarchical feature representations



Izziv
s stoli



Strojno učenje



Primeri rabe



Klasifikacija:

- medicinska diagnostika
- prepoznavanje govora
- biometrična identifikacija
- ocenjevanje kreditne sposobnosti
- ...

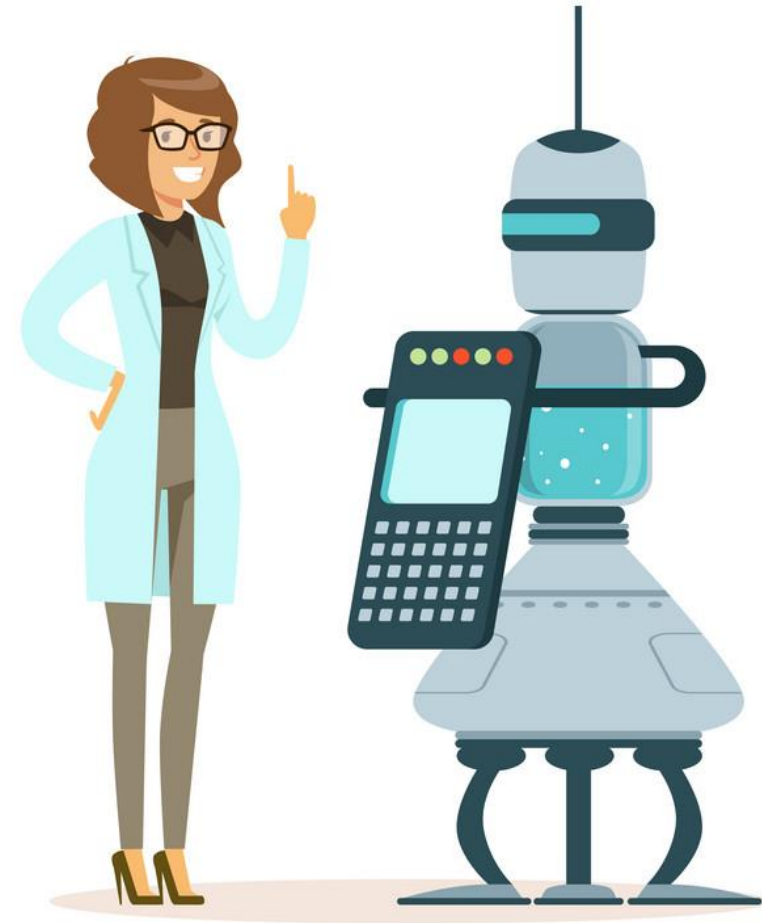
Razvrščanje v skupine:

- priporočilni sistemi in tržna analiza
- razvrščanje dokumentov
- analiza medicinskih slik
- prepoznavanje skupnosti na socialnih omrežjih
- ...

Pristop k problemu z orodji UI



- tip problema
 - klasifikacija ali razvrščanje v skupine?
 - je razumljivost modela pomembna?
- digitalizirani podatki
 - oznake?
 - kdaj dovolj?
 - strokovno znanje
- cena napake?
 - pristranskost (bias)
- podobnost problemov ne pomeni nujno, da so podobno rešljivi
- ...



Event Registry



eventregistry Aljaž Košmerlj

EVENTS ARTICLES

Filter by:

Sample queries

Looking for ideas? Try our sample queries:

- Latest news about **Bitcoin**, **Ethereum** or **Litecoin** in **English**
- Events describing **natural disasters** that occurred in **United States**
- News about **Apple Inc.** reported by **top business related news sources**, sorted by relevance
- **Spanish** articles about **football** that had the highest number of **shares on social media**
- News about **Refugees** published by news sources **located in Germany**, sorted by **source importance**

Current articles and events

Any language

Chinese firm in talks to takeover German auto supplier Grammer
Location: **Amberg, Germany**
Articles about event: **31**

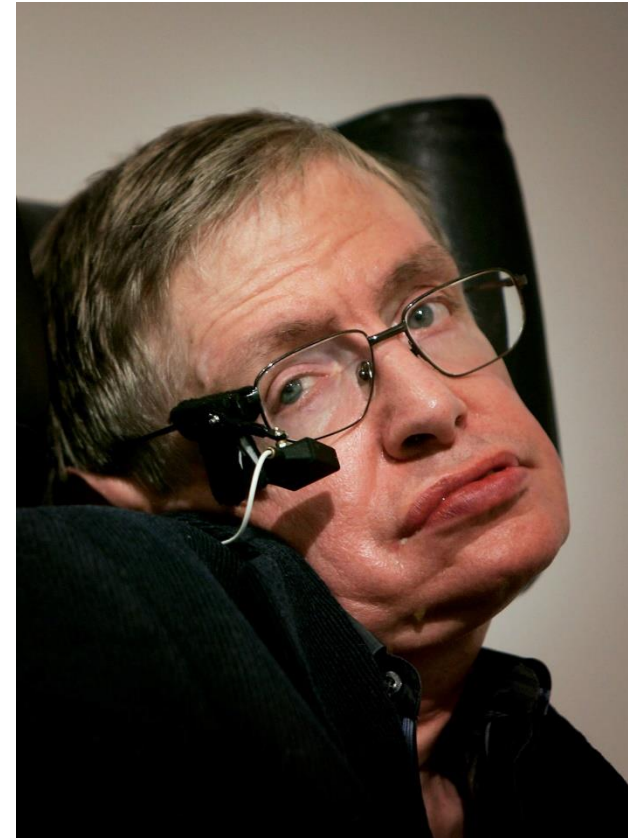
ARTICLES	EVENTS
Chinese firm in talks to takeover German auto supplier Grammer Location: Amberg, Germany Mentioned in 31 articles	
Munjals-Burman combine says yes to re-opening Fortis Healthcare bidding process Location: (unknown) Mentioned in 31 articles	
Epi Wafer Market by Manufacturers, Regions, Type and Application, Forecast to 2025 Location: (unknown) Mentioned in 70 articles	
Rangers boss Steven Gerrard eyes move for West Ham hero Location: Brighton, United Kingdom Mentioned in 13 articles	
Muslim animal slaughter must occur in approved abattoirs: EU court Location: Flanders, Belgium	

<http://eventregistry.org>

Nevarnost?



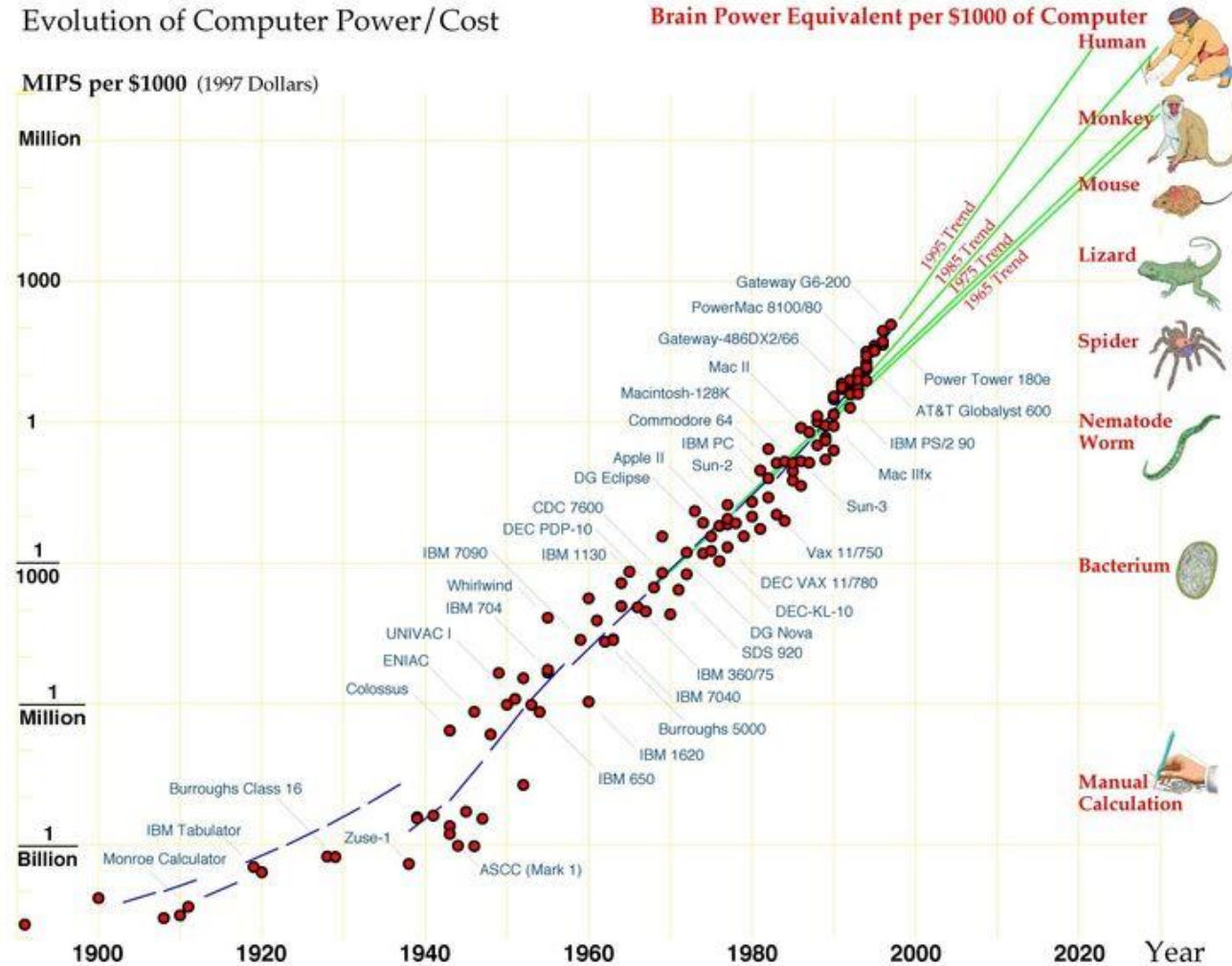
Elon Musk: „*With artificial intelligence we are summoning the demon.*“



Stephen Hawking: „*The development of full artificial intelligence could spell the end of the human race.*“



Tehnološka singularnost



Skratka...



DON'T PANIC

