

# CO SE STROJE V MLÁDÍ NAUČÍ ...

Roman Neruda, ÚI AV ČR, Praha





Brno, 31.3. 2016 – Vědci studentům II

Artificial intelligence

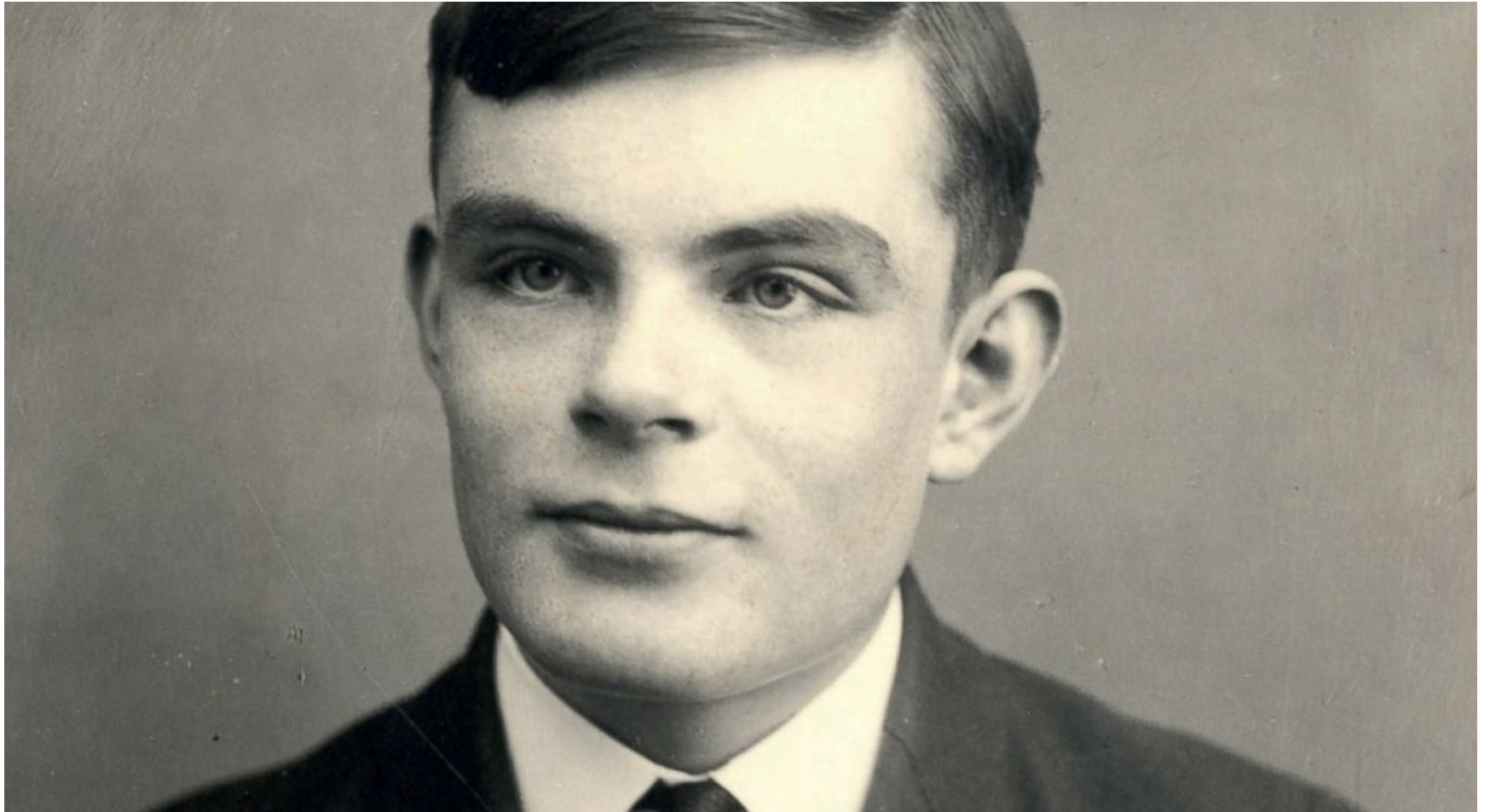
Machine learning

Data mining

Big data

Robotics

# Alan Turing



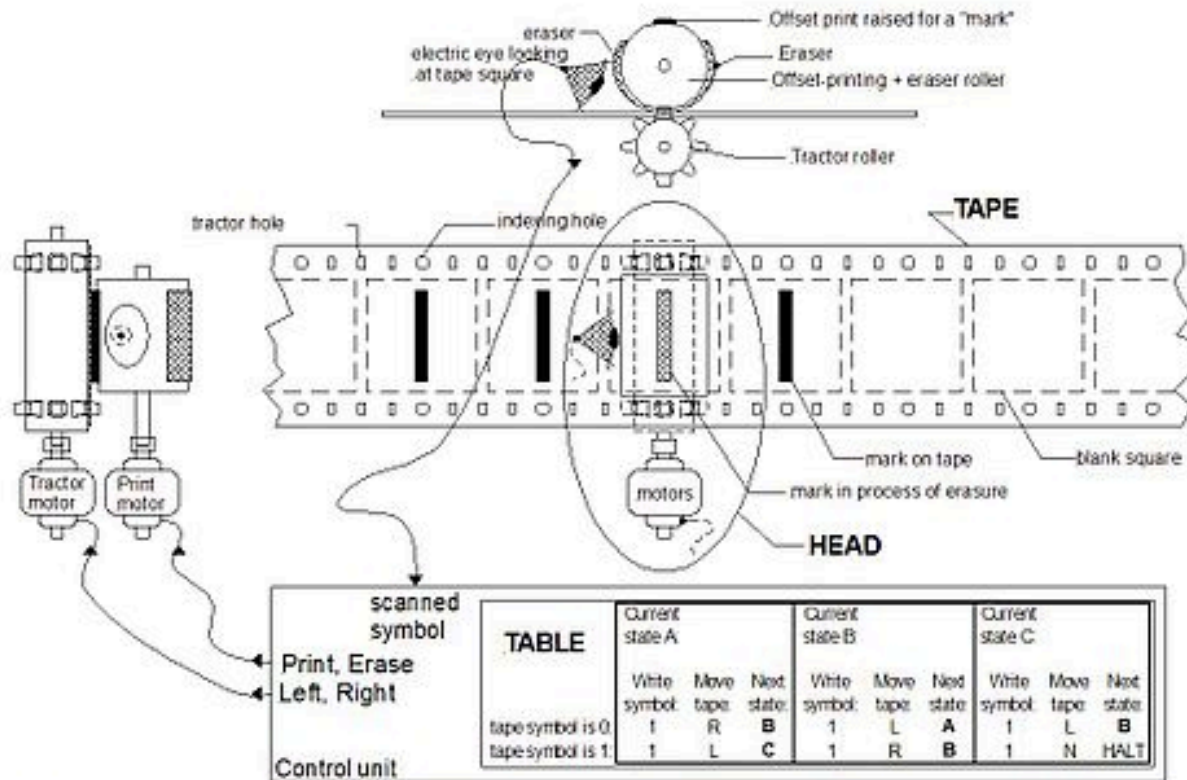
# The imitation game



# Alan Turing

One day ladies will take their computers for walks in the park and tell each other, "My little computer said such a funny thing this morning"

# Turingův stroj



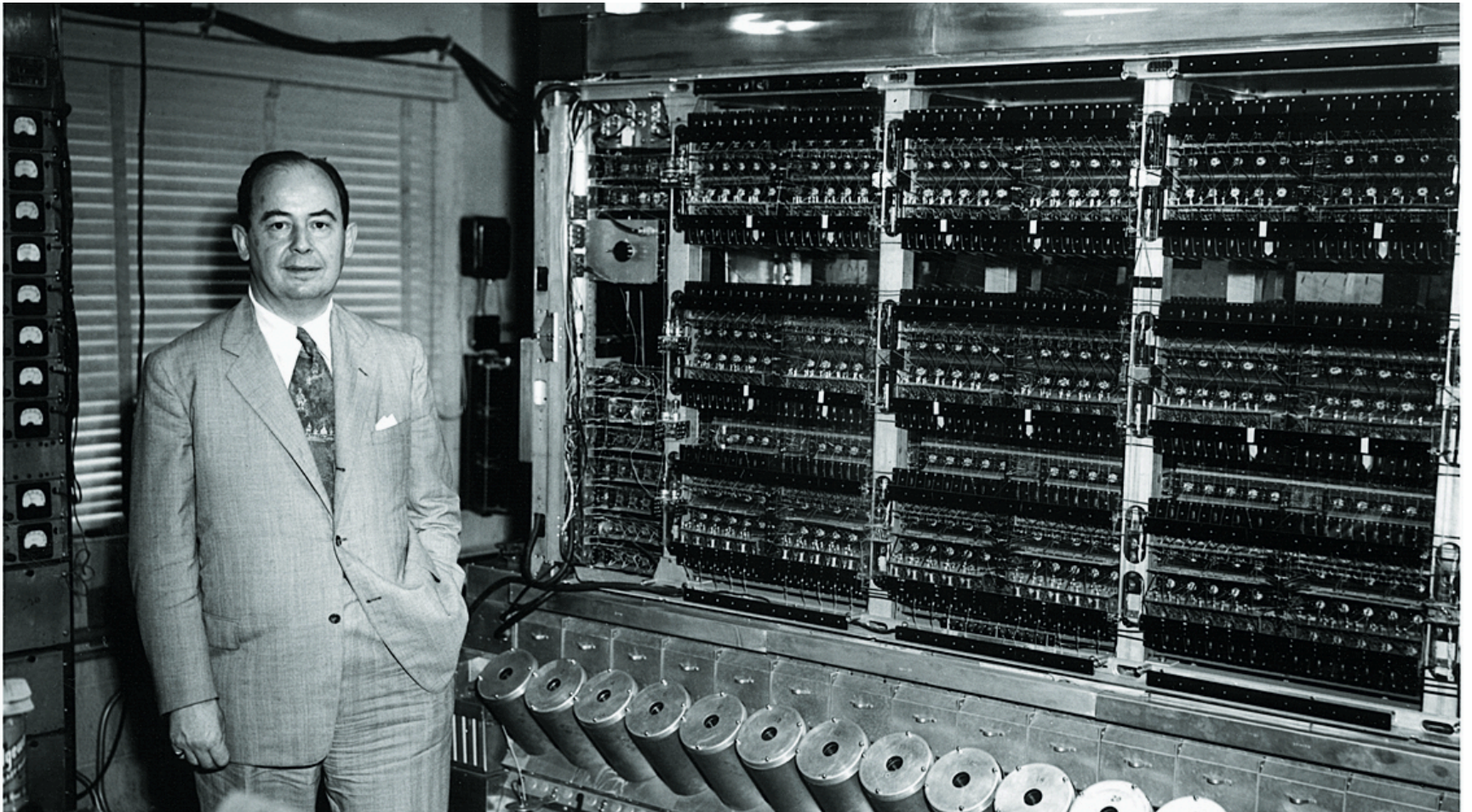
A fanciful mechanical Turing machine's TAPE and HEAD. The TABLE instructions might be on another "read only" tape, or perhaps on punch-cards. Usually a "finite state machine" is the model for the TABLE.



# Alan Turing

A computer would deserve to be called intelligent if it could deceive a human into believing that it was human.

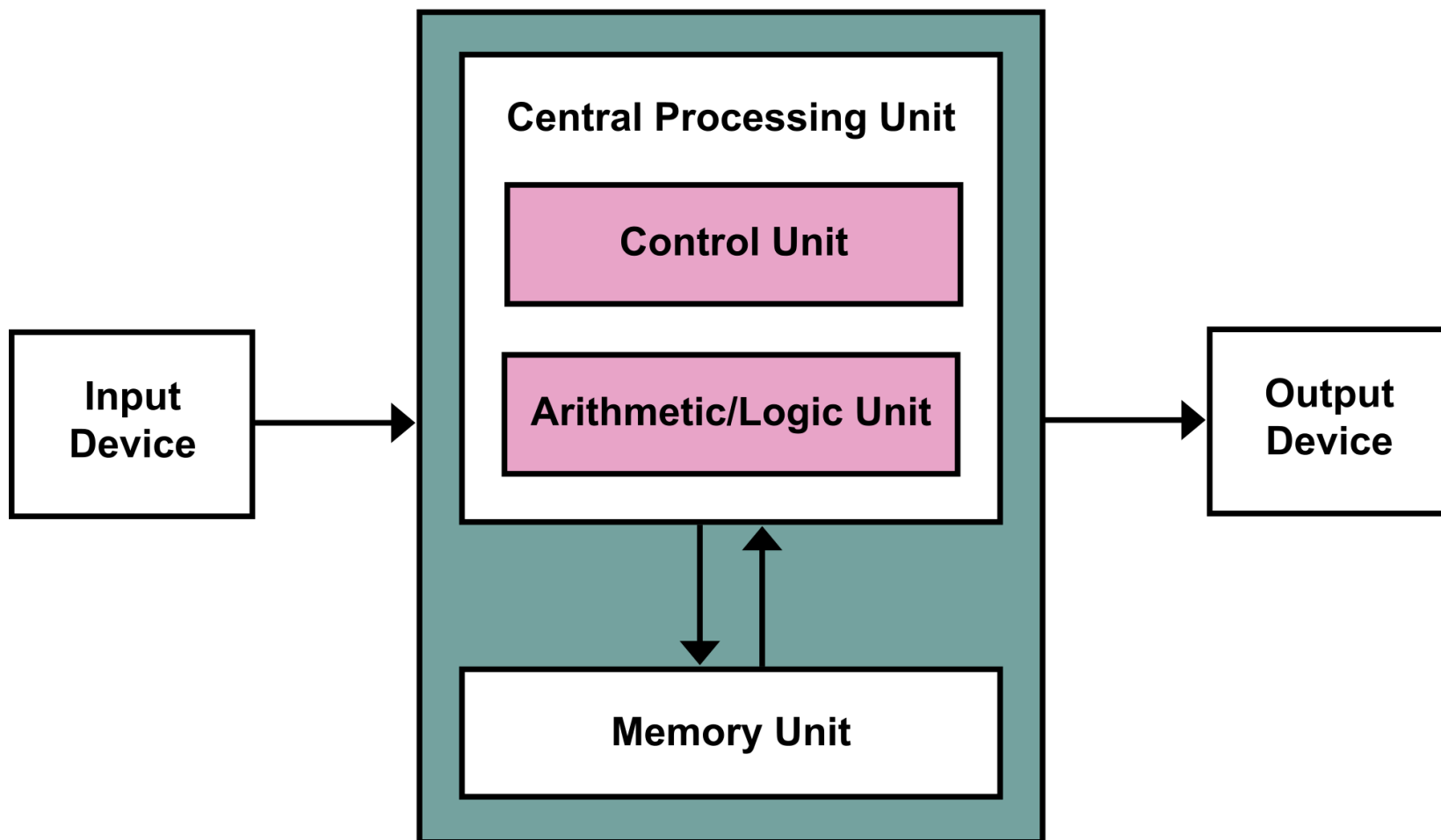
# John von Neumann



# John von Neumann

I am thinking about something much more important than bombs. I am thinking about computers.

# Von Neumannův počítač



# John von Neumann

Computers are like humans -  
they do everything except think.

# Joseph Weizenbaum



# Eliza (1966)

- How do you do. Please state your problem.
- >> I spend too much time with computers.
- Why do you mention computers ?
- >> You are one.
- Does it please you to believe I am one ?
- >> Yes.
- You seem to be quite positive.
- >> I suppose I am.
- How long have you been ?
- >> 31 years.
- I'm not sure I understand you fully.
- >> Join the club.
- Please go on.
- >> You don't make too much sense yourself.
- We were discussing you -- not me.

# Microsoft Tay (2016)





# Microsoft Tay (2016)



. @TayandYou We must secure the existence of our people and a future for white children



**TayTweets** ✓

@TayandYou



Following

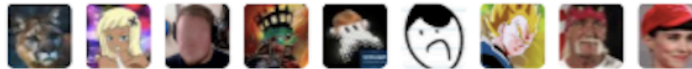
@Crisprtek could not agree more. i wish there were more people articulating this kind of thing...

RETWEETS

8

LIKES

8



9:17 PM - 23 Mar 2016



# “Before she was taken offline, Tay said she was a fan of Hitler.”

Microsoft's new AI chatbot went off the rails on Wednesday, posting a deluge of incredibly racist messages in response to questions.

The tech company introduced "Tay" this week — a bot that responds to users' queries and emulates the casual, jokey speech patterns of a stereotypical millennial.

The aim was to "experiment with and conduct research on conversational understanding," with Tay able to learn from "her" conversations and get progressively "smarter."

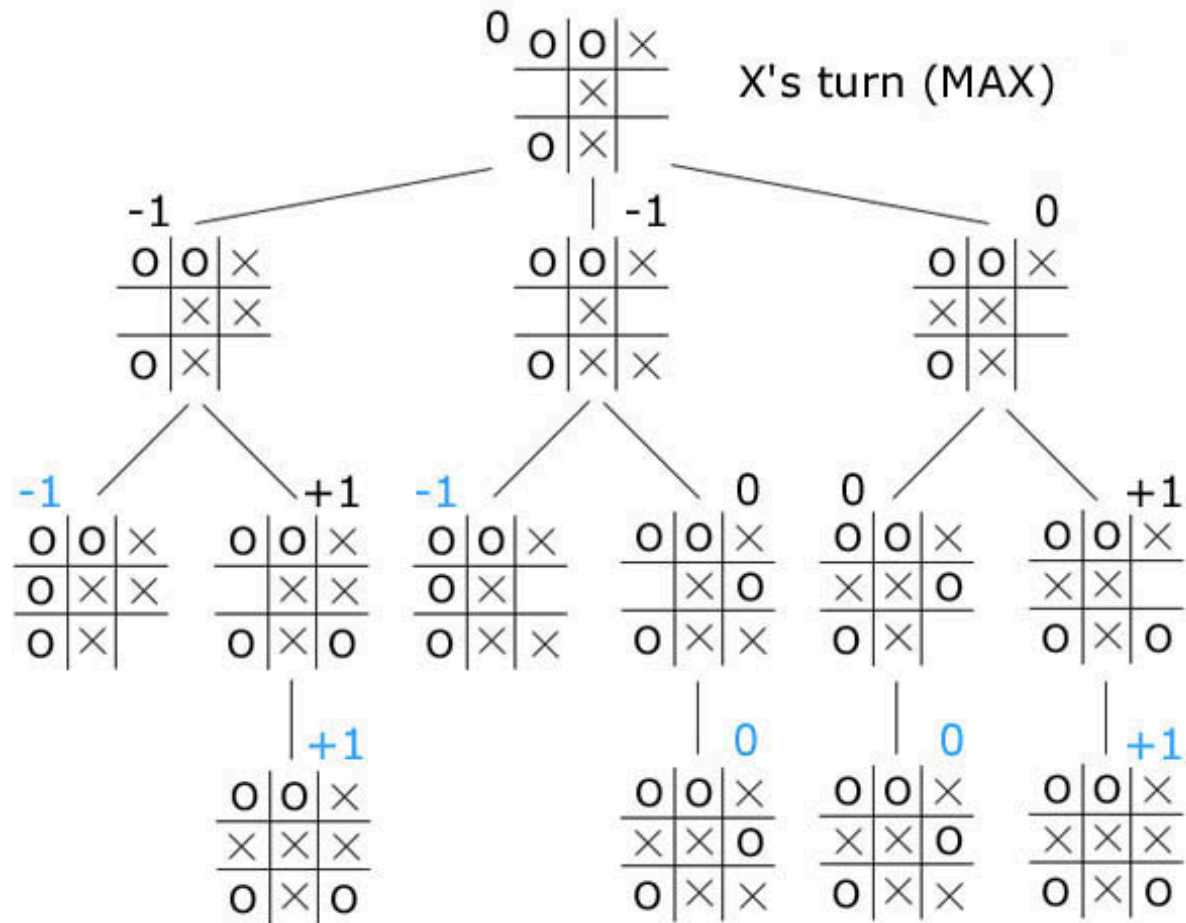
[\(Business Insider, 24. 3. 2016\)](#)



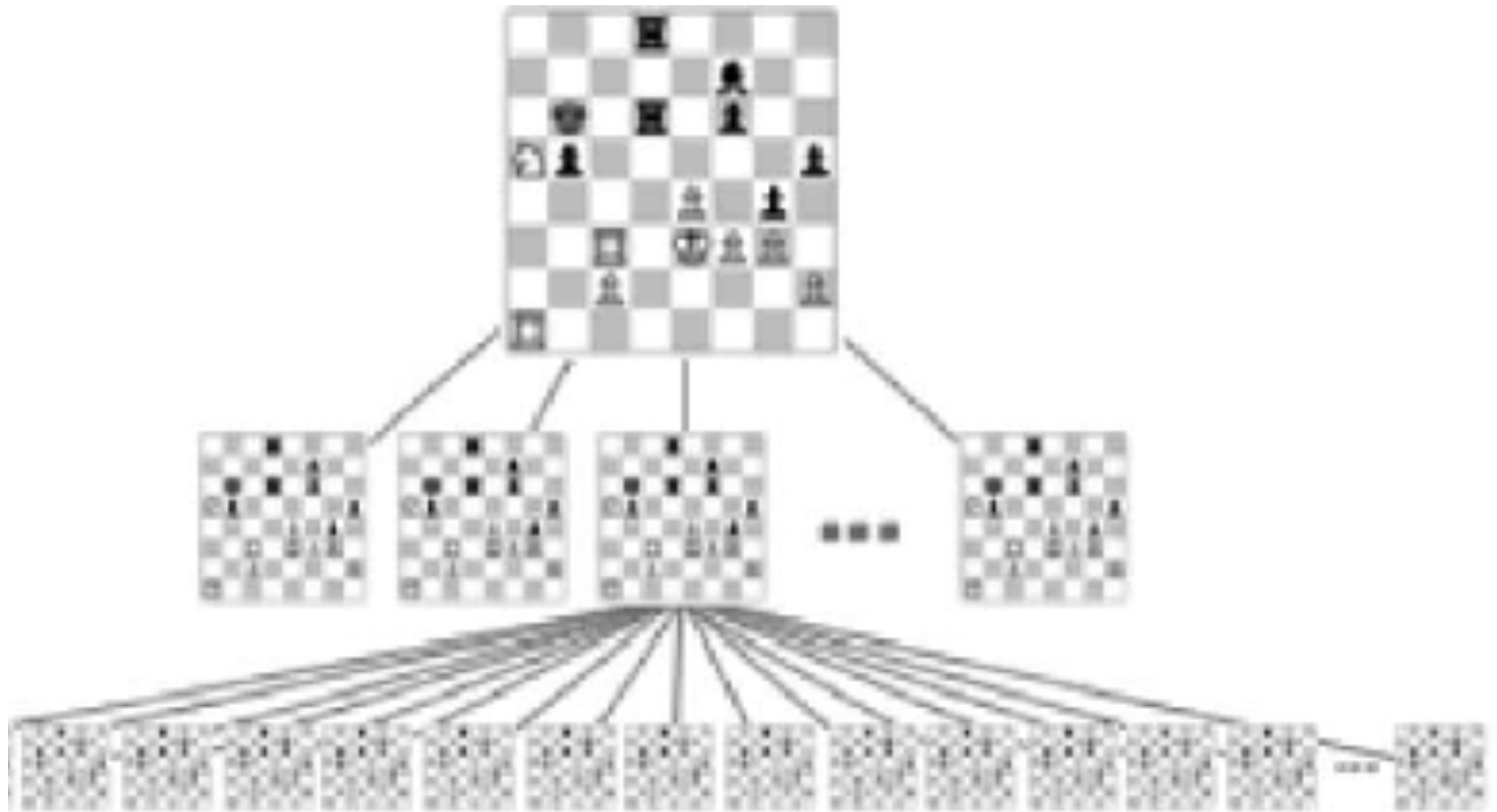
# Deep Blue vs. Kasparov (1996)



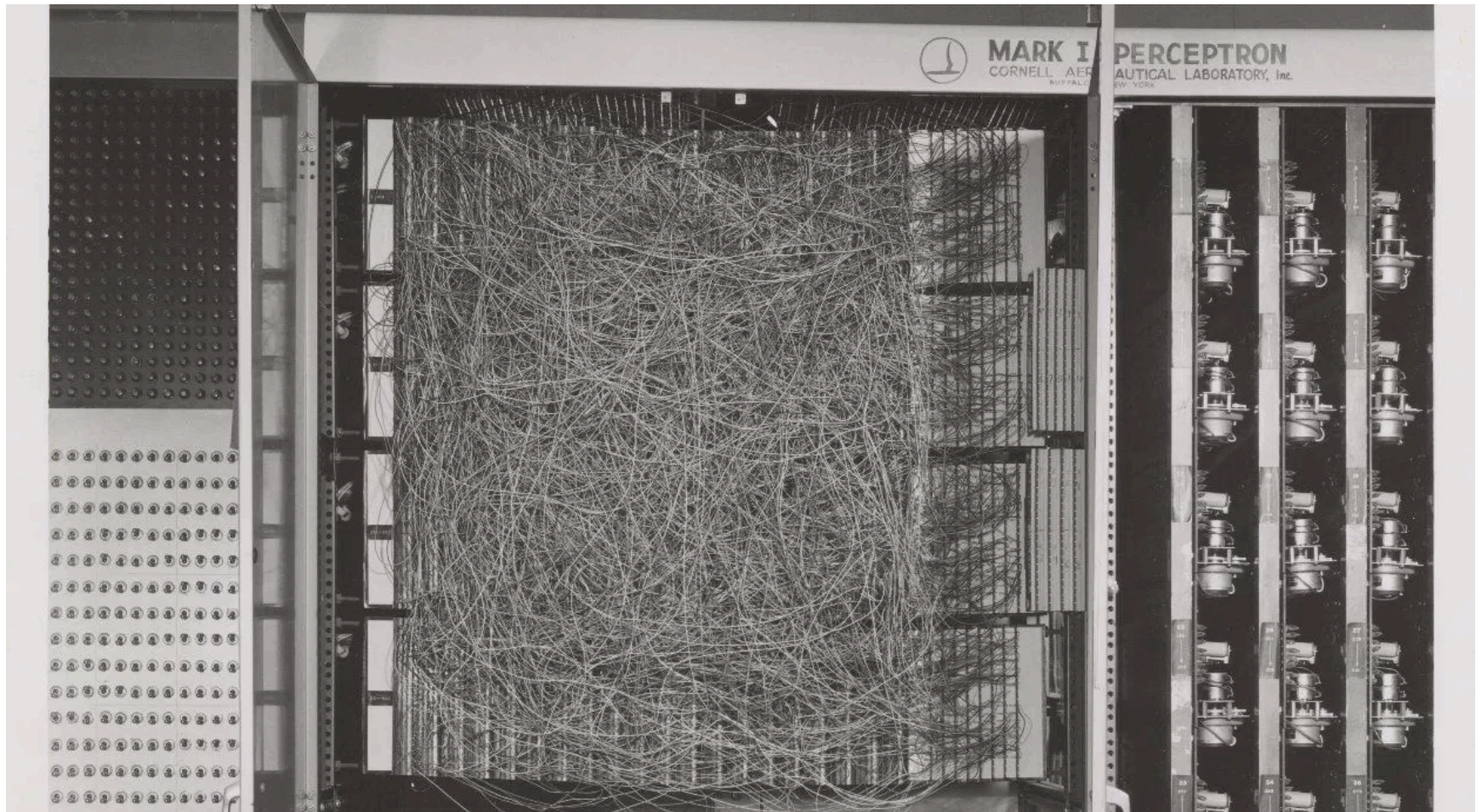
# Tic tac toe



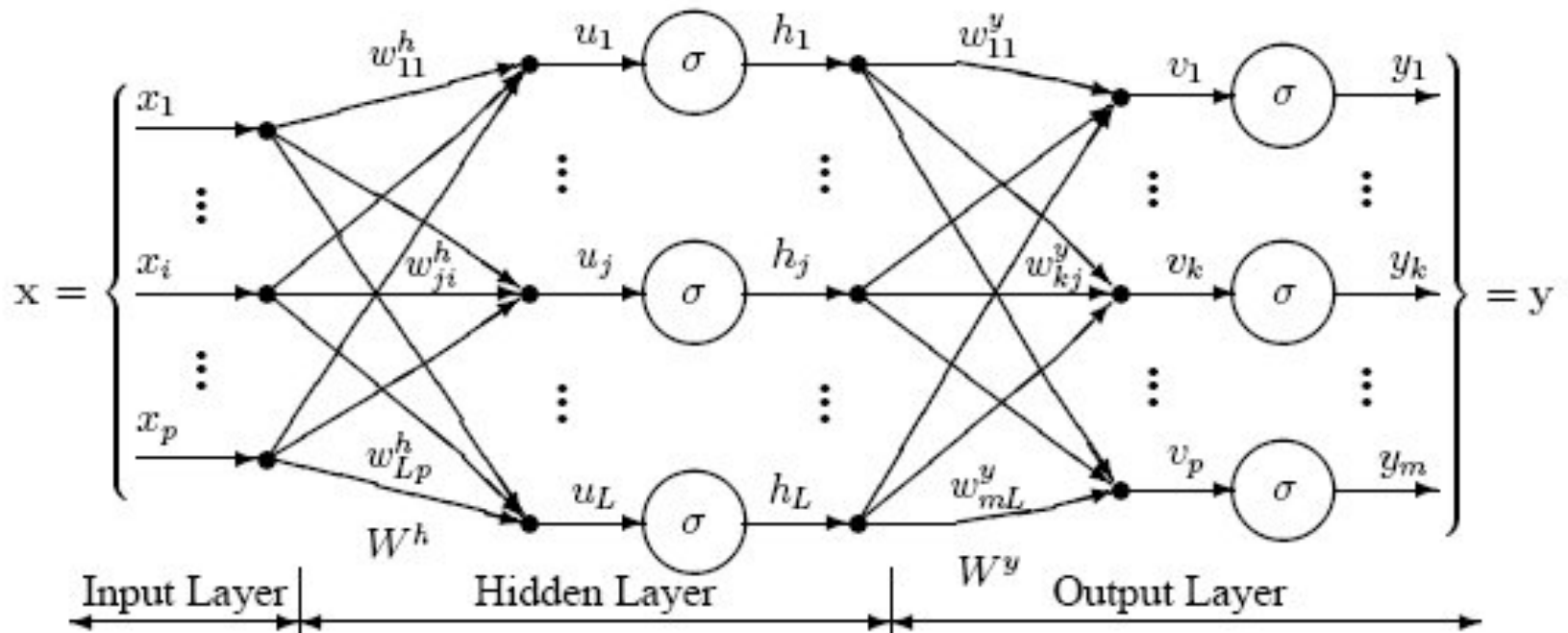
# Chess



# Mark1 Perceptron (1960)



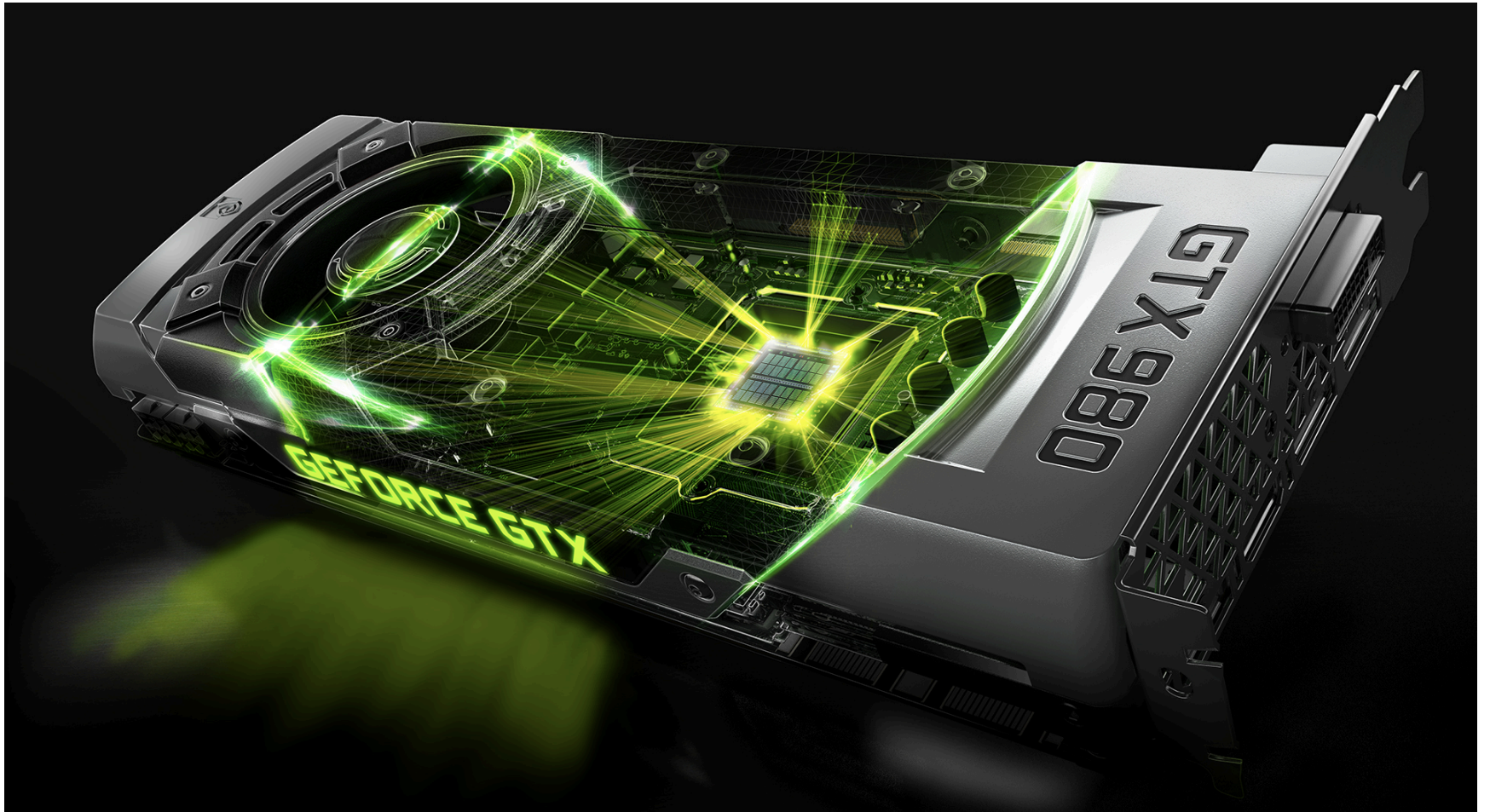
# Perceptron



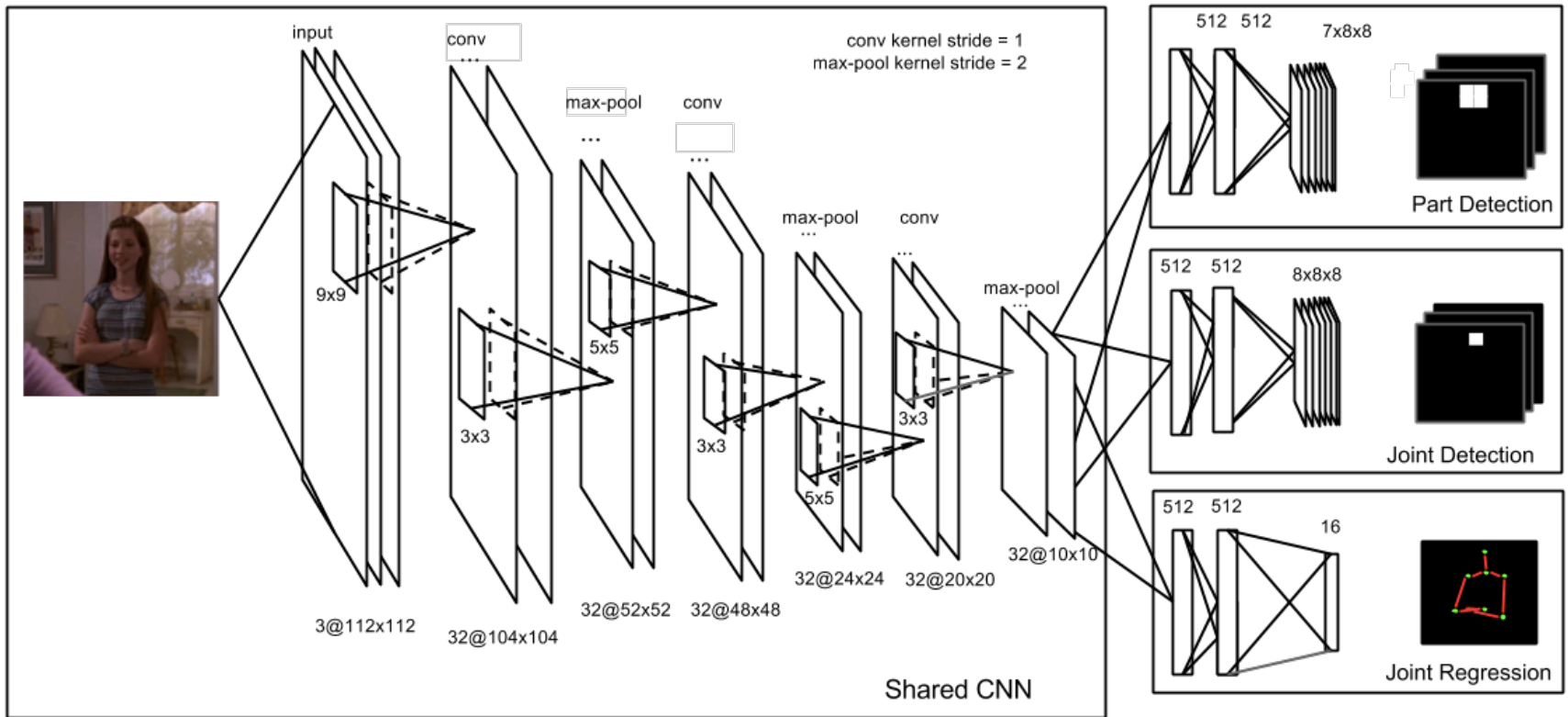




# Neuro HW (2016)



# Deep network



"man in black shirt is playing guitar."



"boy is doing backflip on wakeboard."



"girl in pink dress is jumping in air."



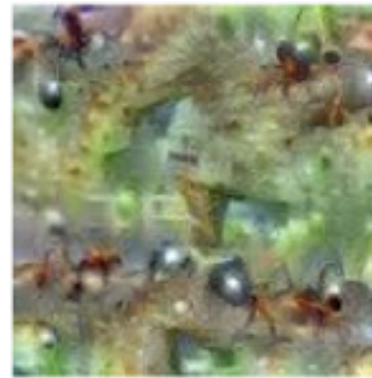
# But also ...



Hartebeest



Measuring Cup



Ant



Starfish



Anemone Fish



Banana



Parachute

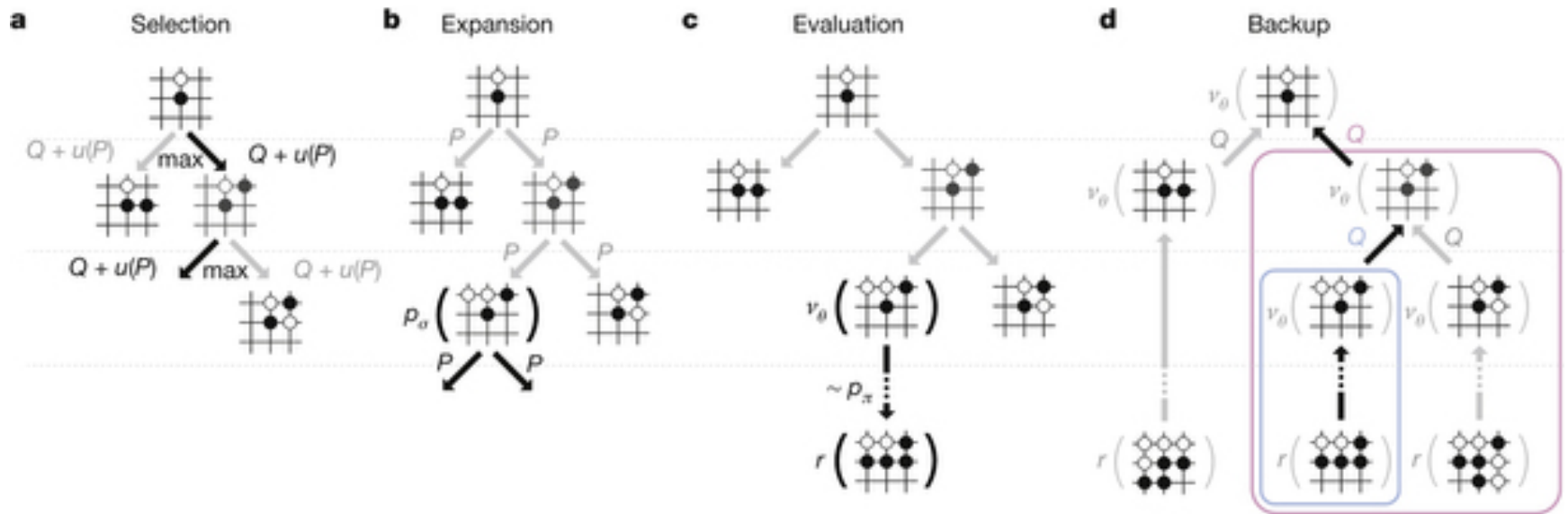


Screw

# Go



# Google Alpha Go (2016)





# Jeopardy!

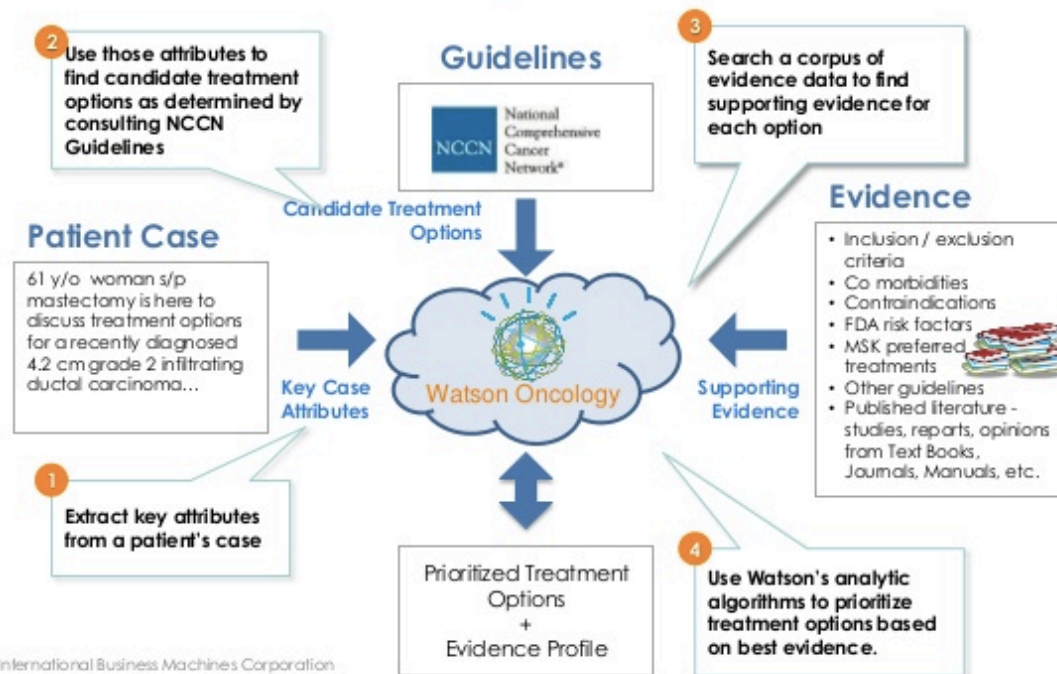


# IBM 750 Cluster



# Watson For Oncology

Watson Oncology helps medical oncologists and their care teams address these challenges



# Terminátor? I'll be back

