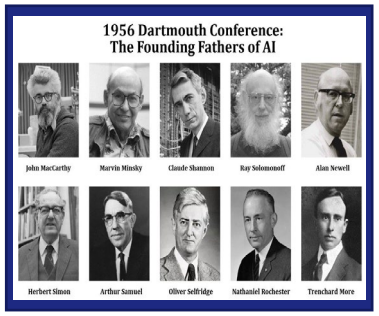
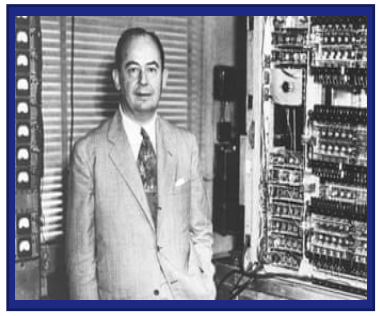
Tomas Eric Nordlander tomas.nordlander@ife.no

Cluster for **Applied AI**

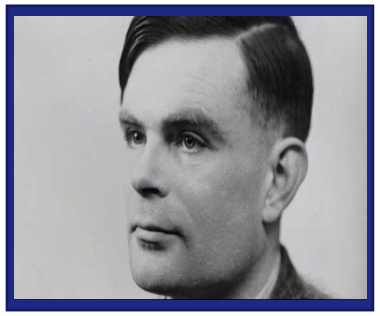
Dartmouth Conference



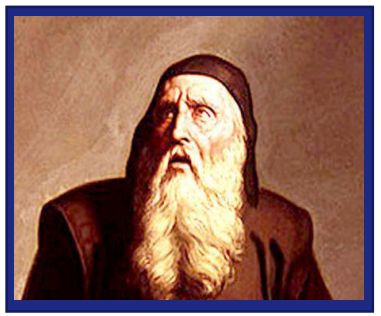
John von Neumann



Alan Turing "Can machines think?"



Ramon Llull "reasoning could be artificially implemented in a machine."



Cold war escalate

1956

1948

1903-1957

1912-1954

1232-1316

DARPA funds

The ALPAC report & The Lighthill report

Expert System & Japan 5th generation

Hardware Changes & Over promise

DARPA funds

1966, 1973

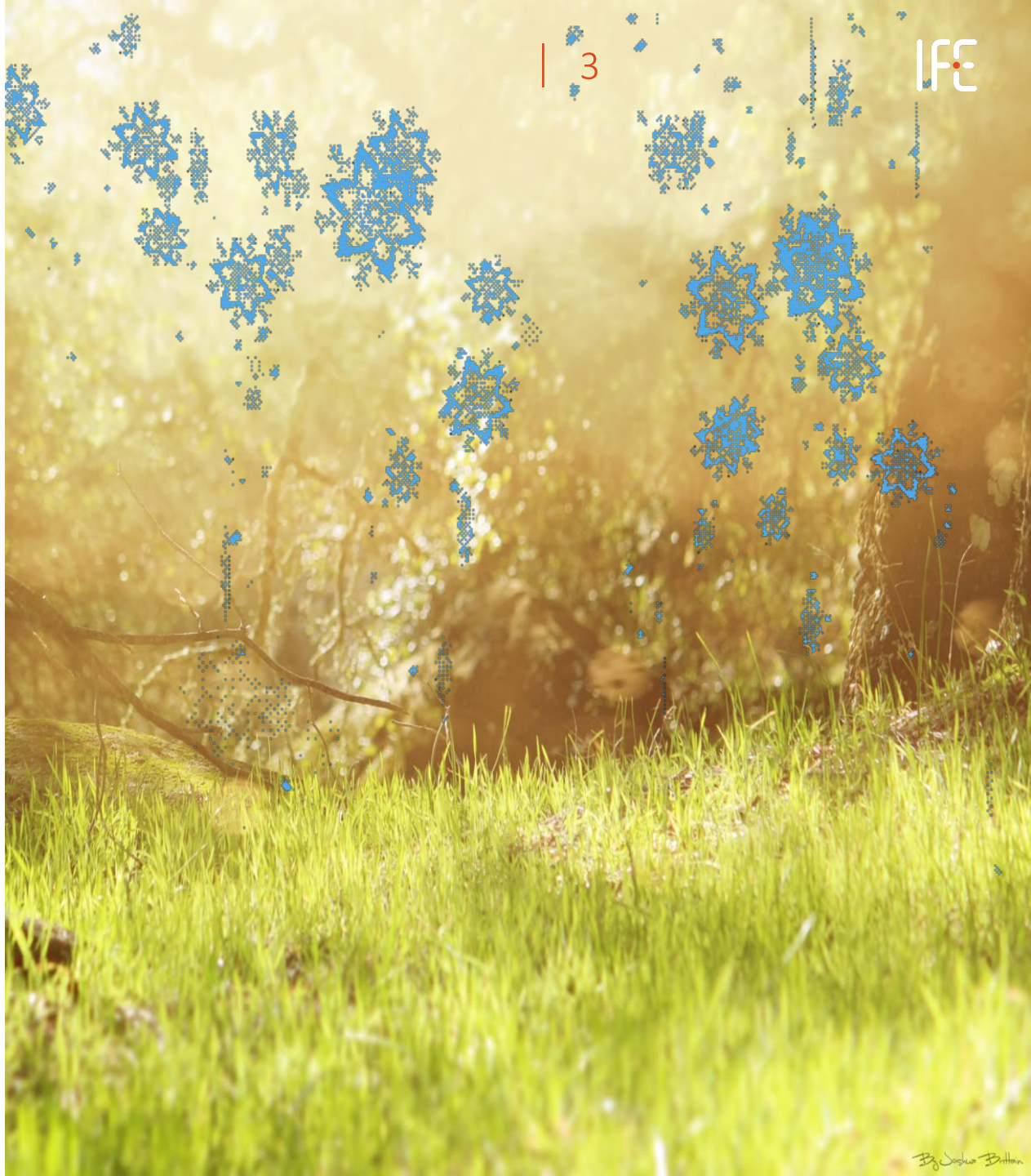
1980

1987-1995

1995 - today

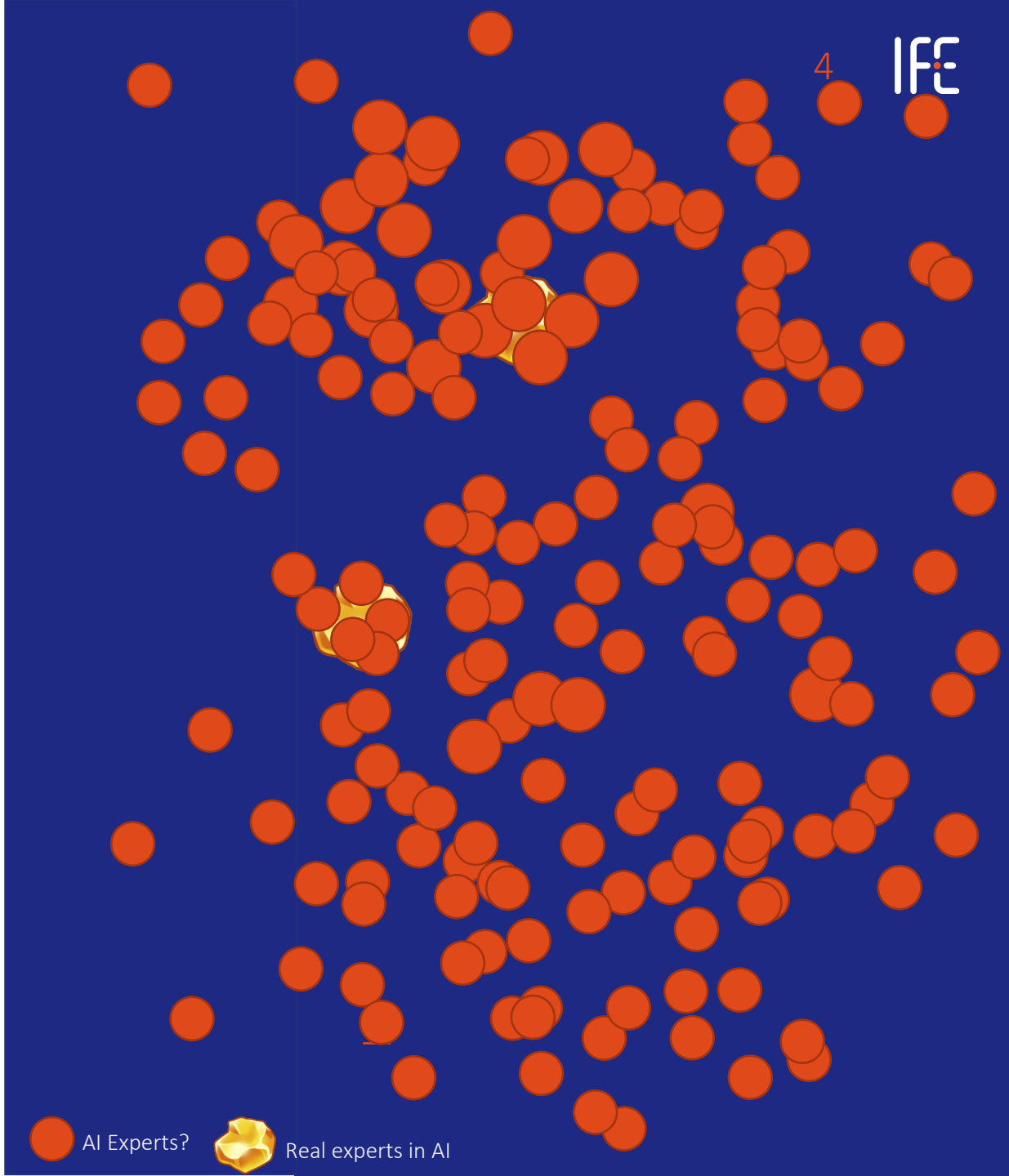
Today it is warm…again

- But with a cold draft
  - Large Promises
  - AI Experts without track record appear everywhere.
  - Attract funds by adding AI to your startup name
  - Opportunistic name changes (e.g. statistics becomes AI)
- But AI it is here to stay due to
  - Data,
  - Computation Power
  - (Algorithm maturity)



Be sceptic

- AI company
  - Do you have customer(s)?
  - Do you have a finished product?
  - Does the product actually apply AI?
- Research Institute/University
  - How many full-time AI researchers?
  - How long have you focused on AI?
  - Show me something you did.

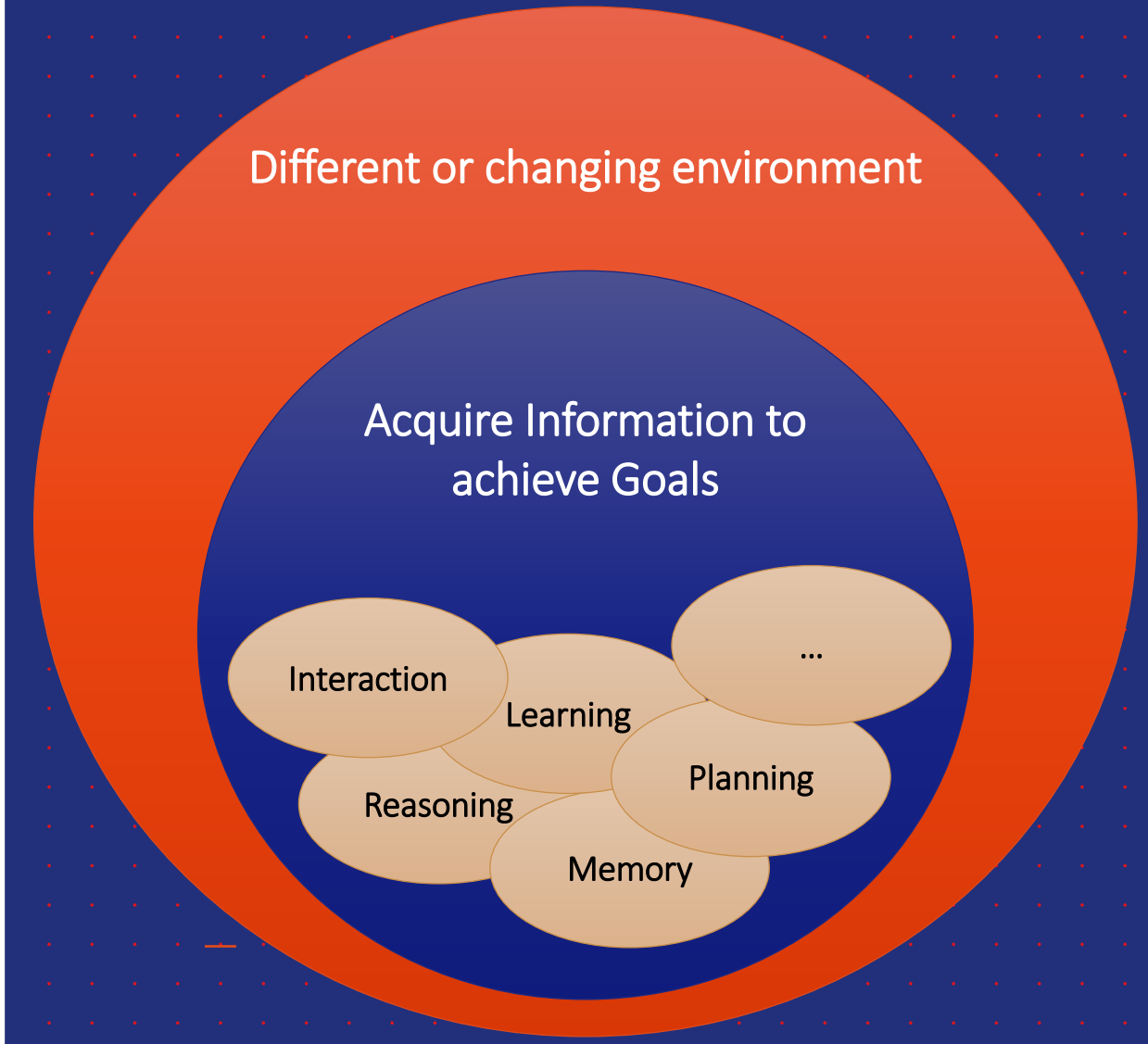


Artificial Intelligence

[redacted] *demonstrated by machines and software"*

"Machine [redacted]

Problem: No common agreed definition on Intelligence.

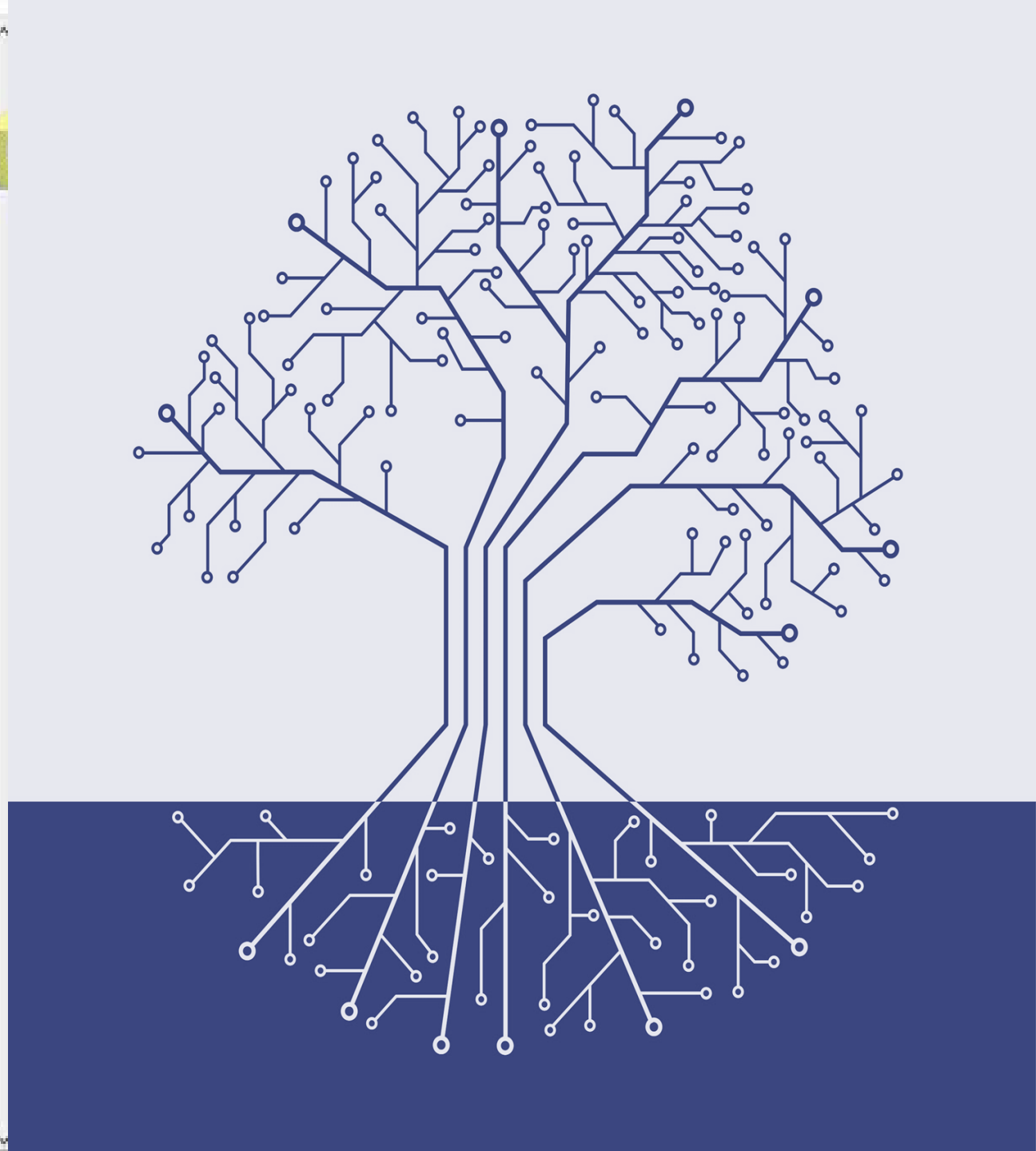


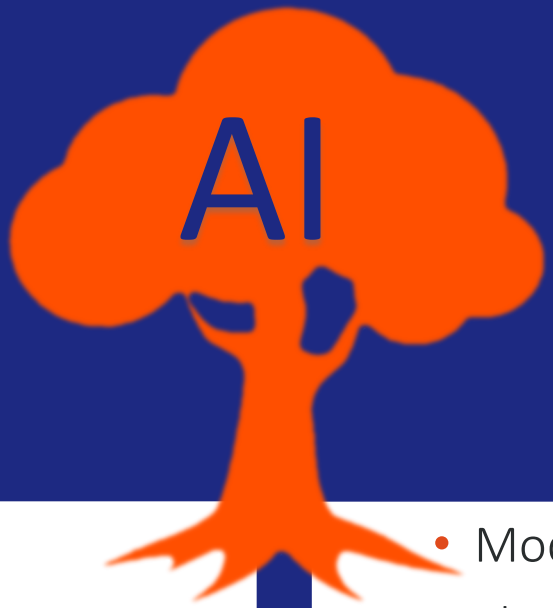
Alan Bundy (Ed.)

Artificial Intelligence Techniques

A Comprehensive Catalogue

Fourth, Revised Edition





Symbolic AI

- Models make sense to humans
- Use logic reasoning and Heuristics
- White box (e.g. expert system)

Subsymbolic AI

- Modelling the problem is inspired by the neuron.
- Black box (e.g Neural Network)

Current AI

Future AI

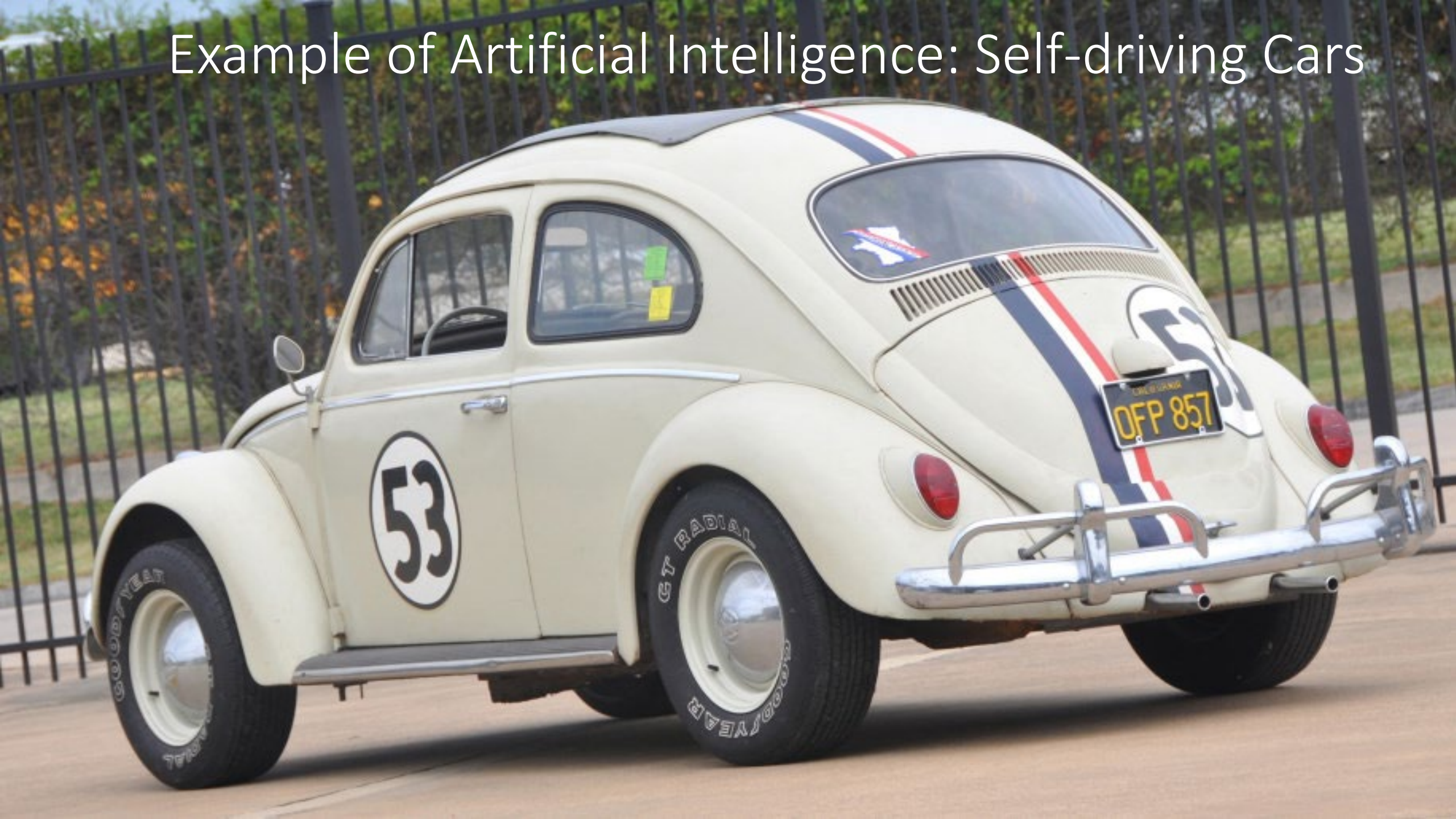
Weak Artificial Intelligence

Artificial Narrow Intelligence
Ordinary Artificial Intelligence
Narrow Artificial Intelligence
…

Strong Artificial Intelligence

Artificial General Intelligence
Full Artificial Intelligence
Broad Artificial Intelligence
…

Example of Artificial Intelligence: Self-driving Cars



https://youtu.be/5ocvNxjN3dc

Self-driving cars, the start and the pioneer

Scientist Ernst Dickmanns

1986:

- The 5-ton van 96 Km/h

1995

- 1700 km on the autobahn from Bavaria to Denmark, reaching speeds of 175 km/h

DARPA Grand Challenge

2004

On a 240 km desert route

15 teams participated

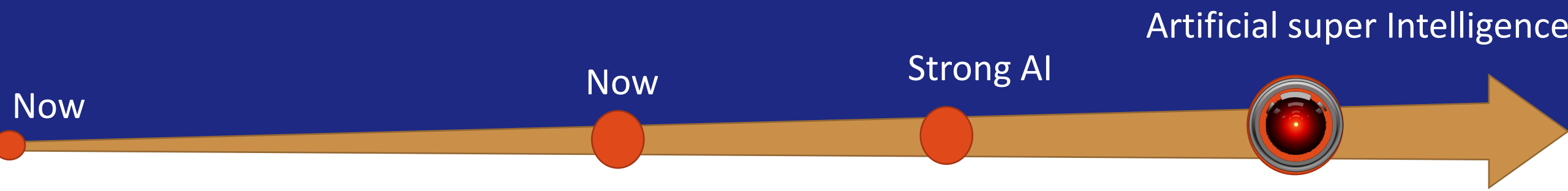
Results

- 2 withdrawn before the race
- None finished
- Best managed 11,9 km out of 240 km


https://www.youtube.com/watch?v=fKXztwtXaGo
Ego Speed: 45.56 MPH
Time: 1545.441322000
CAL P 0.60 Y 1.20 R 0.00 deg
Vision fps: 18.05 Draw fps: 17.67 Display fps: 21.34
NL(0.00), E(0.93), F(0.07), TF(0.00), S(0.00)
NRW: FLP(0.00), FRP(0.00)
CutInExcited (Prb 0.58)
+0.0001 AUTO_HIGH_BEAM
+0.0000 BLINDED
+0.0002 RAINING
+0.0000 TIRE_SPRAY
+0.0013 WET_ROAD
0.7902 RESTRICTED
0.0934 CONTROLLED_ACCESS
L:0 R:0 F:2 ON:0
W:8.2 AP:1.0 I:0
VS: 46.7 MPH St: 1
merge: 1.0 1 160.2 R
40m
Play (k)
0:00 / 0:31
What does it look like today?


https://www.youtube.com/watch?v=vfirAm1lTMo
1:39 / 9:04
AUTONOMOUS Mercedes DRIVE?! Level 3

AI for bad



Automation of jobs

Change of education

Inconsistent regulation

Algorithmic Bias

Socioeconomic inequality

Privacy violations

Fake News (Deepfakes)

Autonomous AI weapons:

The race for AI superiority

Danger from AI itself

AI for good

Now

Now

Strong AI

Artificial super Intelligence

- The 23 Asilomar Principles
- Accessibility
- New different jobs
- Remove dangerous jobs
- Reduce Bias
- Education
- Resilience
- Assisting natural disasters
- Climatechange
- Conservation
- Environment
- World Hunger
- Human Rights
- Fight Fake News
- Healthcare
- Reduce resource waste
- Reduce Inequality

Small Magic Show

AI chatt

ChatGPT (openai.com)

Image generator

Dall E 3 or Dall E 3

Music generator

AIVA

Summary

- AI has a long history and is hyped
- People mix science and fiction
- AI does bad or good, it is a tool

- Something special has happened the last 2 years
- AI is here to stay, and the next 5 years will be a wild ride!

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