ASC27

ASSBB
ASSOCIAZIONE PER LO SVILUPPO
DEGLI STUDI DI BANCA E BORSA

UNIVERSITÀ
CATTOLICA
del Sacro Cuore

SADIBA **47**

SPEECH BY **NICOLA GRANDIS - ASC27 S.R.L.**

"ARTIFICIAL INTELLIGENCE IN THE WORLD TO COME"

(in 5 yrs)

Acknowledgements

Up2Starts - Intesa San Paolo

TOP 10 Start-up

Unioncamere

TOP 10 Start-up

Lazio Innova

Boost Your Ideas

Confindustria

Best Practices Award for Innovation

WAIC

TOP 50 Start-up

Noovle

Noovle Cloud Challenge

ENI

Data Mining Selection Day

Fortune Italia

Top AI 20 startup

WAIC

Best Startup Pitch

Telsy - Regione Lazio

Open Innovation Challenge

Lazio Innova

Find the Vehicle

WAICF Cannes

Neurons Awards

Rai · Corriere della Sera · Il Sole 24 ORE · AGI Agenzia Italia · agenzia NOVA · Sky · la Repubblica · WIRED · Forbes · DiRE · il manifesto · adnkronos · L'Espresso · affaritaliani.it

ISO 9001 BUREAU VERITAS Certification — ISO9001

TIM ENTERPRISE DIGITAL PLAYERS · aws startup programs · Microsoft Proud to partner with Microsoft for Startups

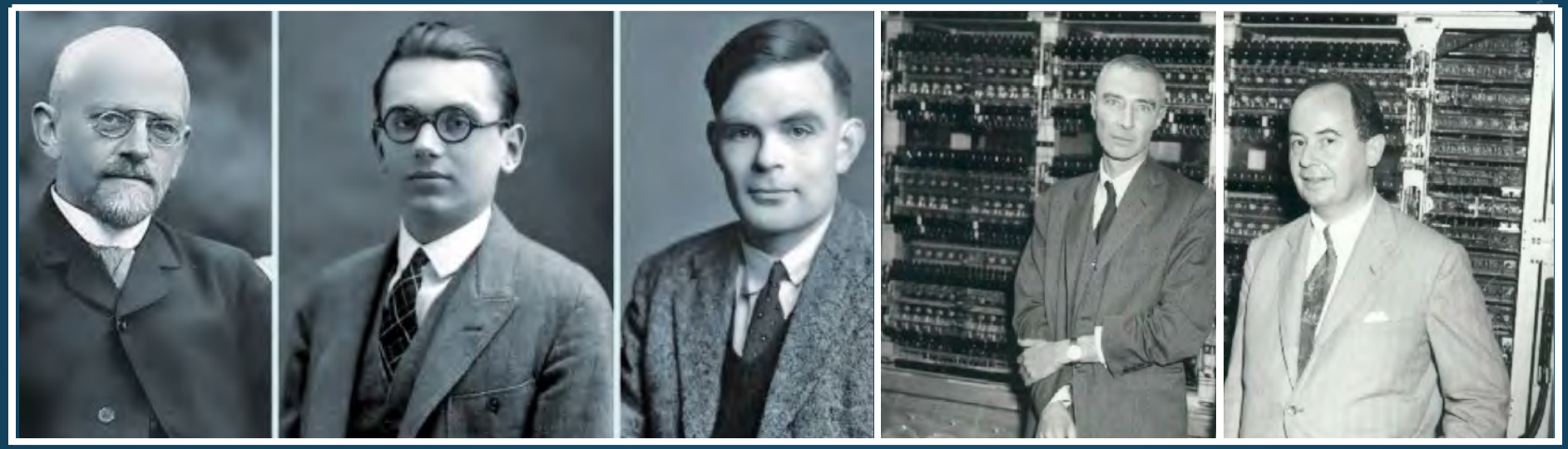
OVHcloud Startup Program · STARTUP PROGRAM by Scaleway · NVIDIA INCEPTION PROGRAM · Google Cloud for Startups

FATHERS OF **AI**

ARTIFICIAL «INTELLIGENCE»

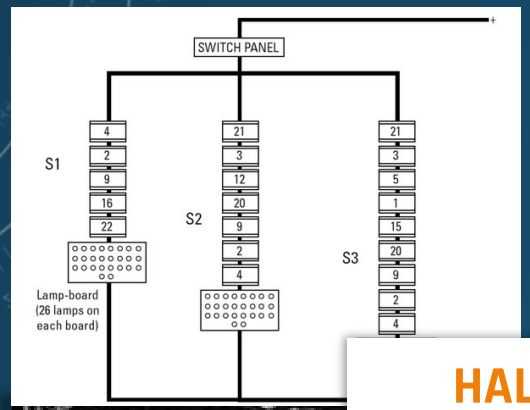
HISTORY OF **OPEN ISSUES** ON AI

MATHEMATICS — **LOGIC** — **HALTING PROBLEM** — **THEORY OF INFORMATION** — **ENTROPY**



Hilbert | Godel | Turing | Shannon | Von Neumann

PROBLEMS STILL OPEN TODAY



HALTING

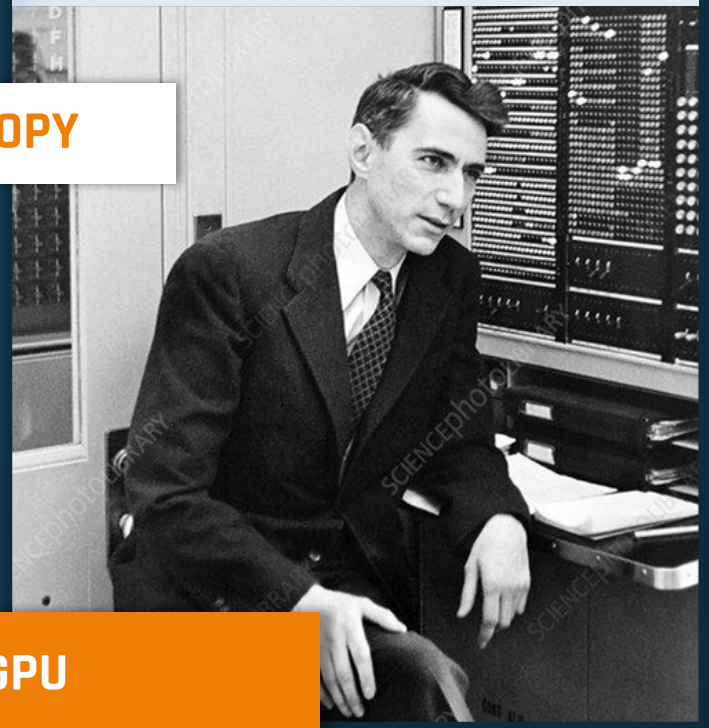
WE DON'T HAVE AN AGI

ENTROPY

Von Neumann Entropy: $S_{VN} \equiv -Tr[\rho \ln(\rho)]$

Shannon Entropy of Energy: $S_E \equiv -\sum_j P_j \ln(P_j)$

where P_j is the probability to measure energy eigenvalue E_j



THAT LITTLE WE DO, NEEDS GPU

FATHERS OF **NEURAL NETWORKS**

DEEP LEARNING

PERCEPTRON

Lecun Hinton Bengio

FEED FORWARD NETWORKS

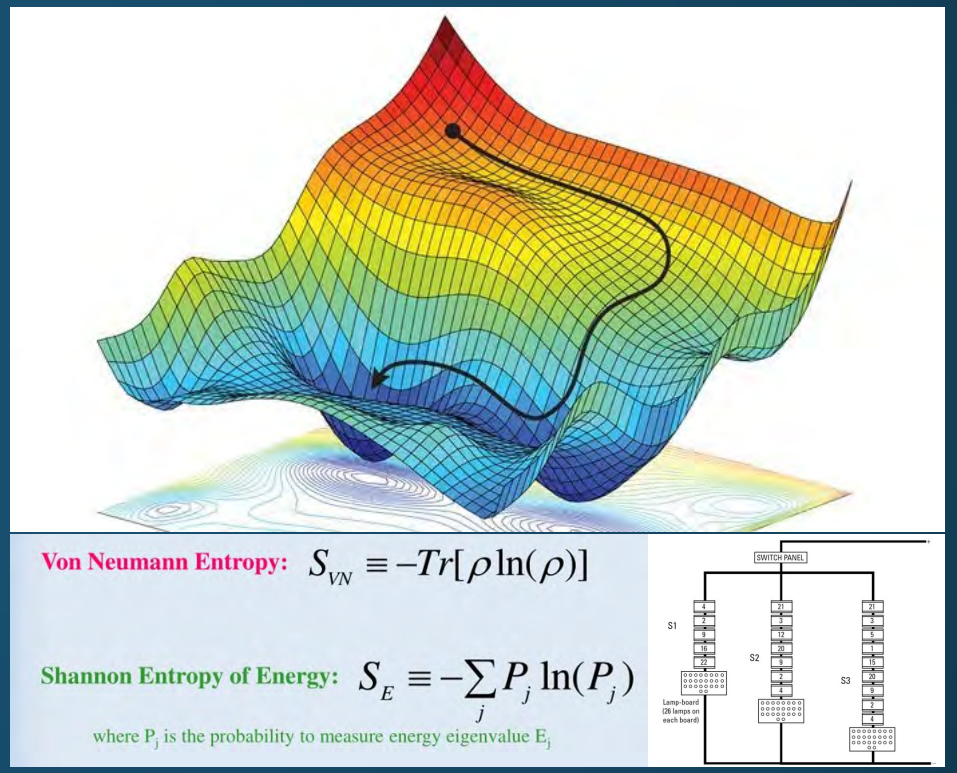
GRADIENT DESCENDING

ASC27

HOW WE **LEARN** THE WORLD

FEED FORWARD NETWORKS

GRADIENT DESCENDING



HUMANS

MACHINES

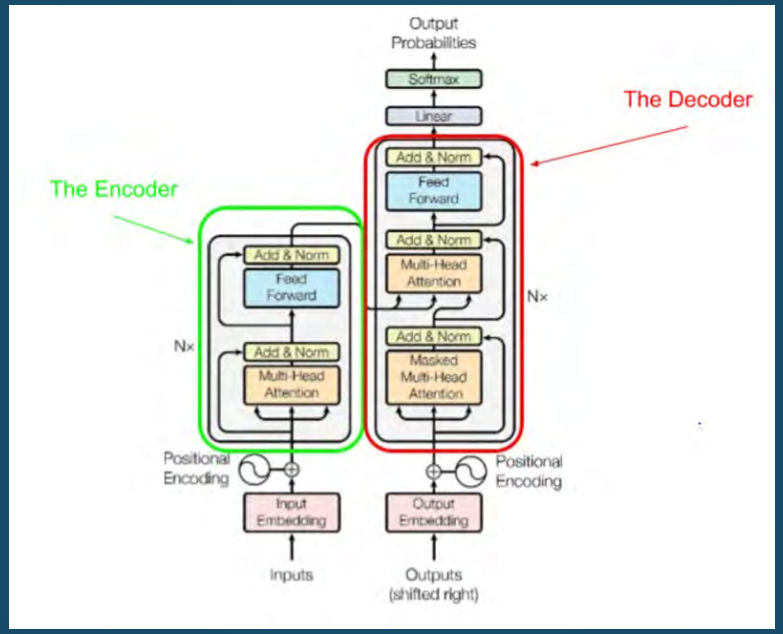
RESEARCH

GOOGLE

12/06/2017

TRANSFORMER

TRANSLATOR



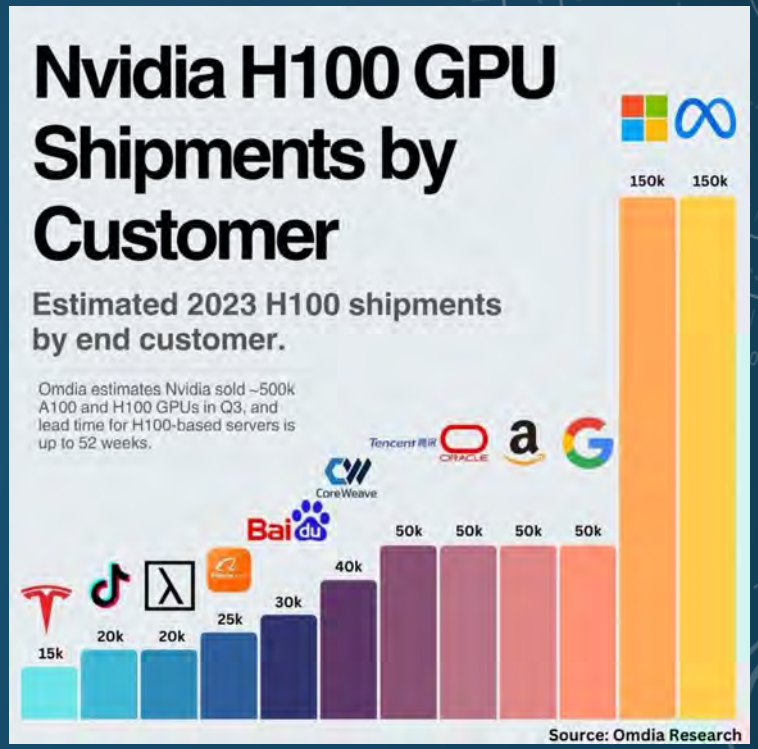
5 yrs

GENERAL PRETRAINED TRANSFORMER

LLM (LARGE LANGUAGE MODEL)

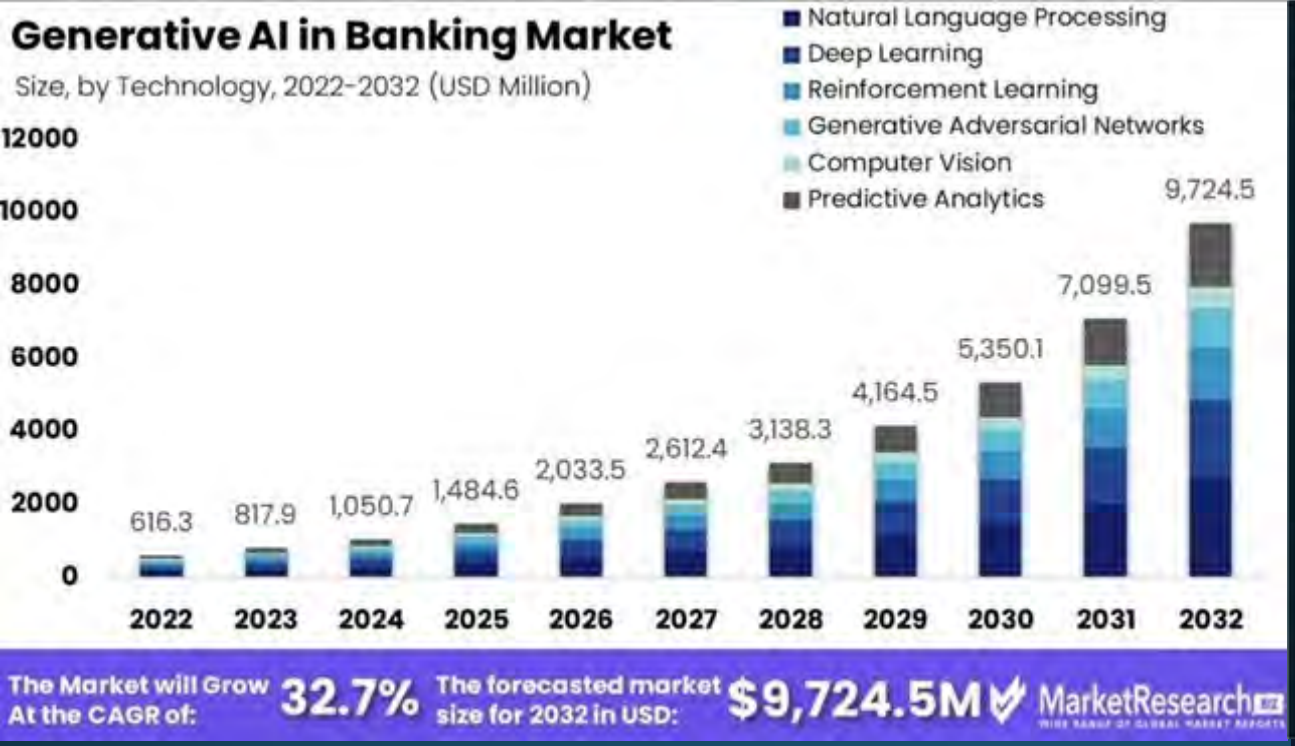
30/11/2022

DIMENSIONS



META ORDERED
600.000 H100 GPU

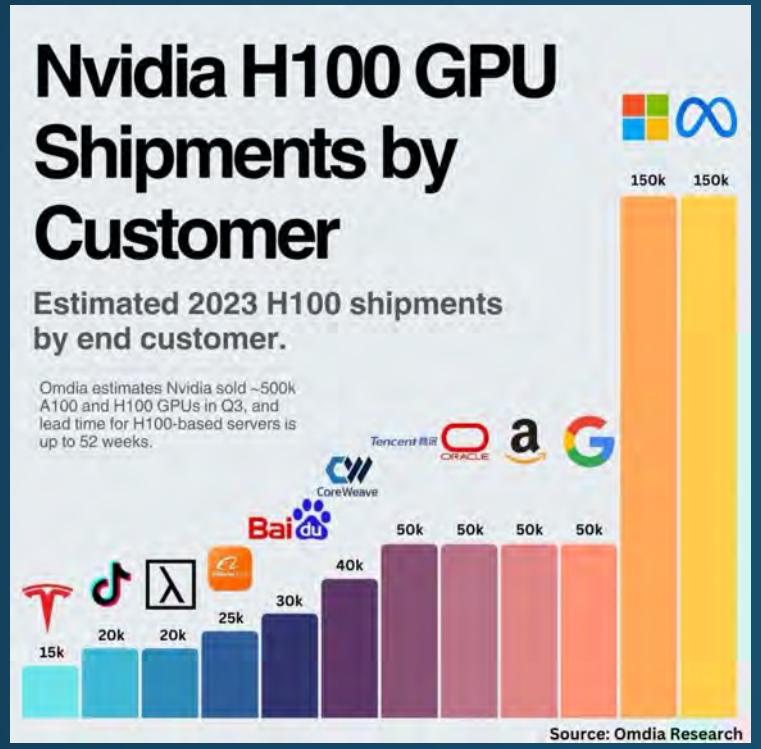
LEONARDO1 CINECA
1.400 A100 GPU



2032

BANKING *OUTLOOK*

DO YOU REMEMBER?



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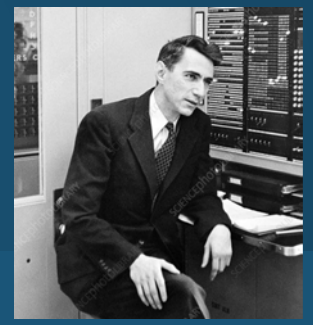
where P_j is the probability to measure energy eigenvalue E_j

[GPU]

[BATTLE FOR ENTROPY]

My greatest concern was what to call it. I thought of calling it 'information', but the word was overly used, so I decided to call it 'uncertainty'. When I discussed it with John von Neumann, he had a better idea. Von Neumann told me, "You should call it entropy, for two reasons. In the first place your uncertainty function has been used in statistical mechanics under that name, so it already has a name. In the second place, and more important, nobody knows what entropy really is, so in a debate you will always have the advantage."

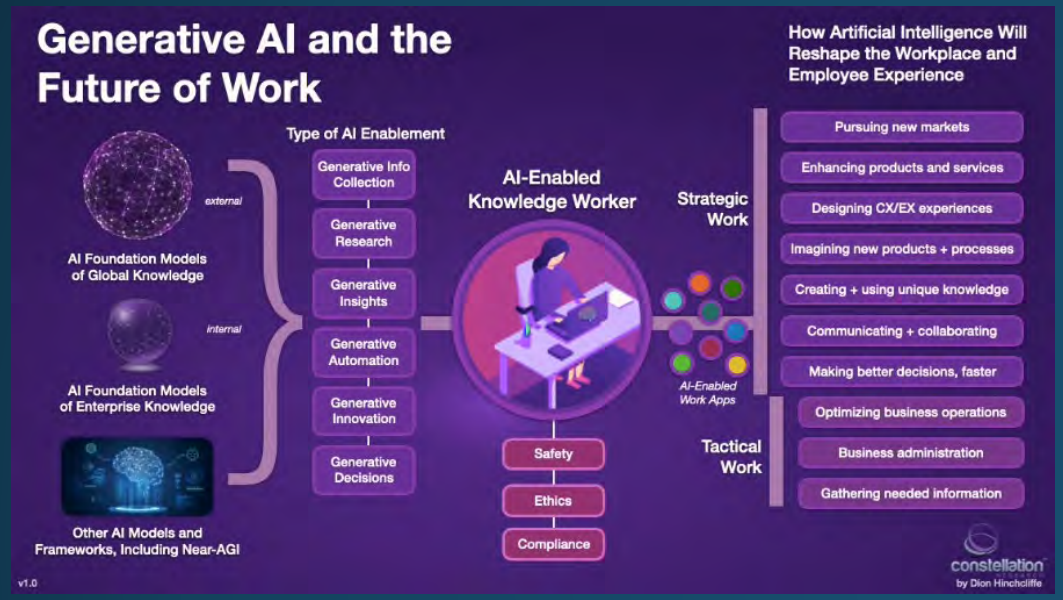


Claude Shannon

You will always need a GPU with important memory close to the computation unit,

We are far from advanced wearable AI.

WHERE AI GOES



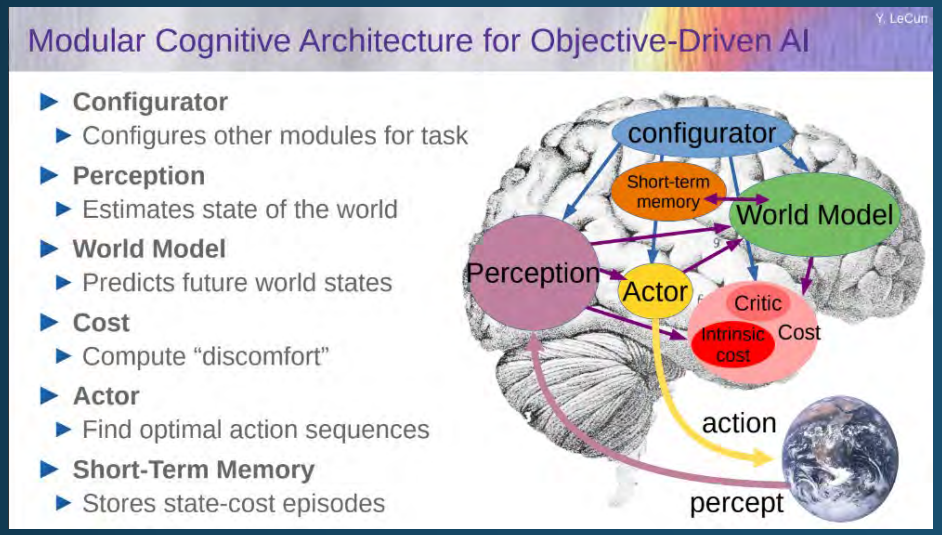
MARKETING

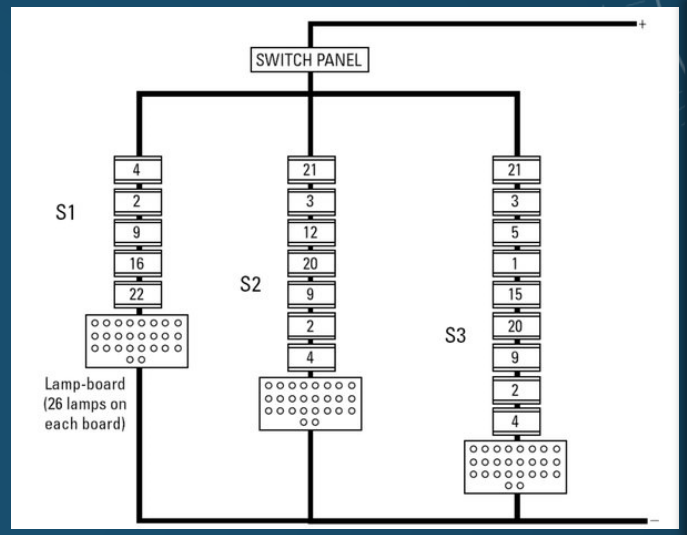
5 yrs

2017-2022

RESEARCH

DO YOU REMEMBER?





[OBJECTIVE DRIVEN]

[HALTING PROBLEM BATTLE]

5 yrs ? ☺

"Intelligence is not a scalar quantity."

Yan Lecun

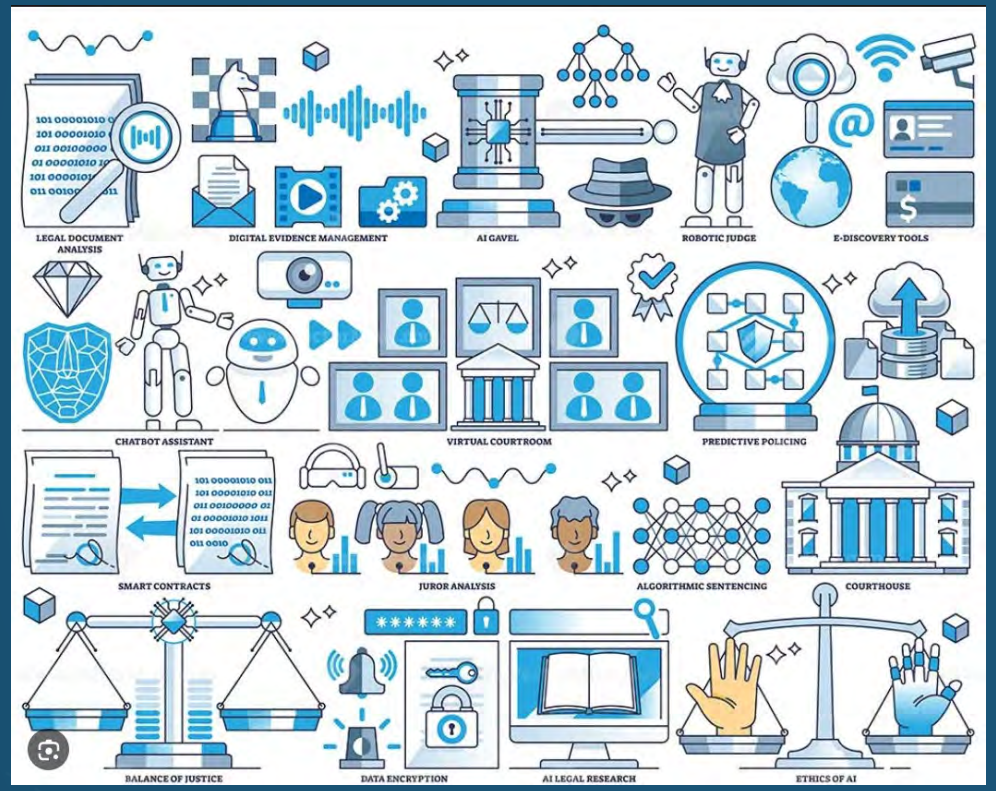
A LLM HOWEVER GREAT, PREDICTS ONE WORD AFTER ANOTHER,
BUT DOES NOT KNOW WHAT IT IS SAYING.

"AGI will arrive in five years."

Jensen Huang

AI maintains a distance of **5 years** between Research and the Real World. In the car industry, the distance is about 15 years, in aviation 30, in space 50, and in construction 100 or more.

WE WILL **WIN**



AI is a process **science**

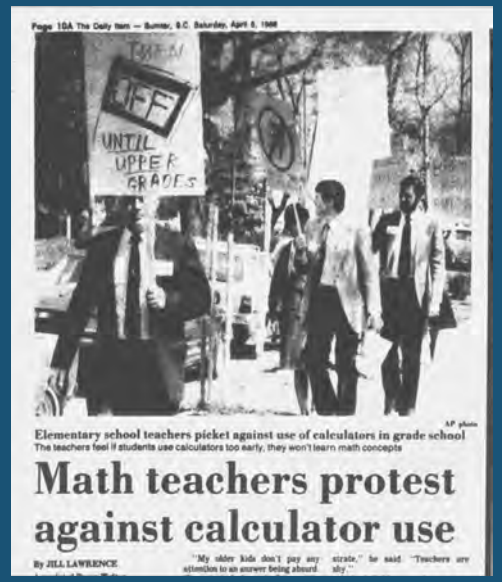
In processes there are **humans**

Humans are **imperfect**

This develops our **genius**

AI can only repeat, **we resolve**

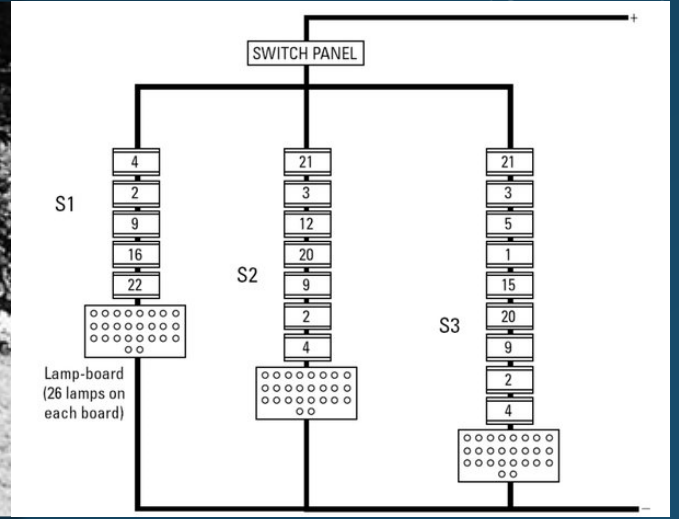
DIFFERENT FUTURE



Who will **buy** | Who will **do it**

Who will **suffer it** | Who will **govern it**

Who will be **left behind** | Who will **benefit**



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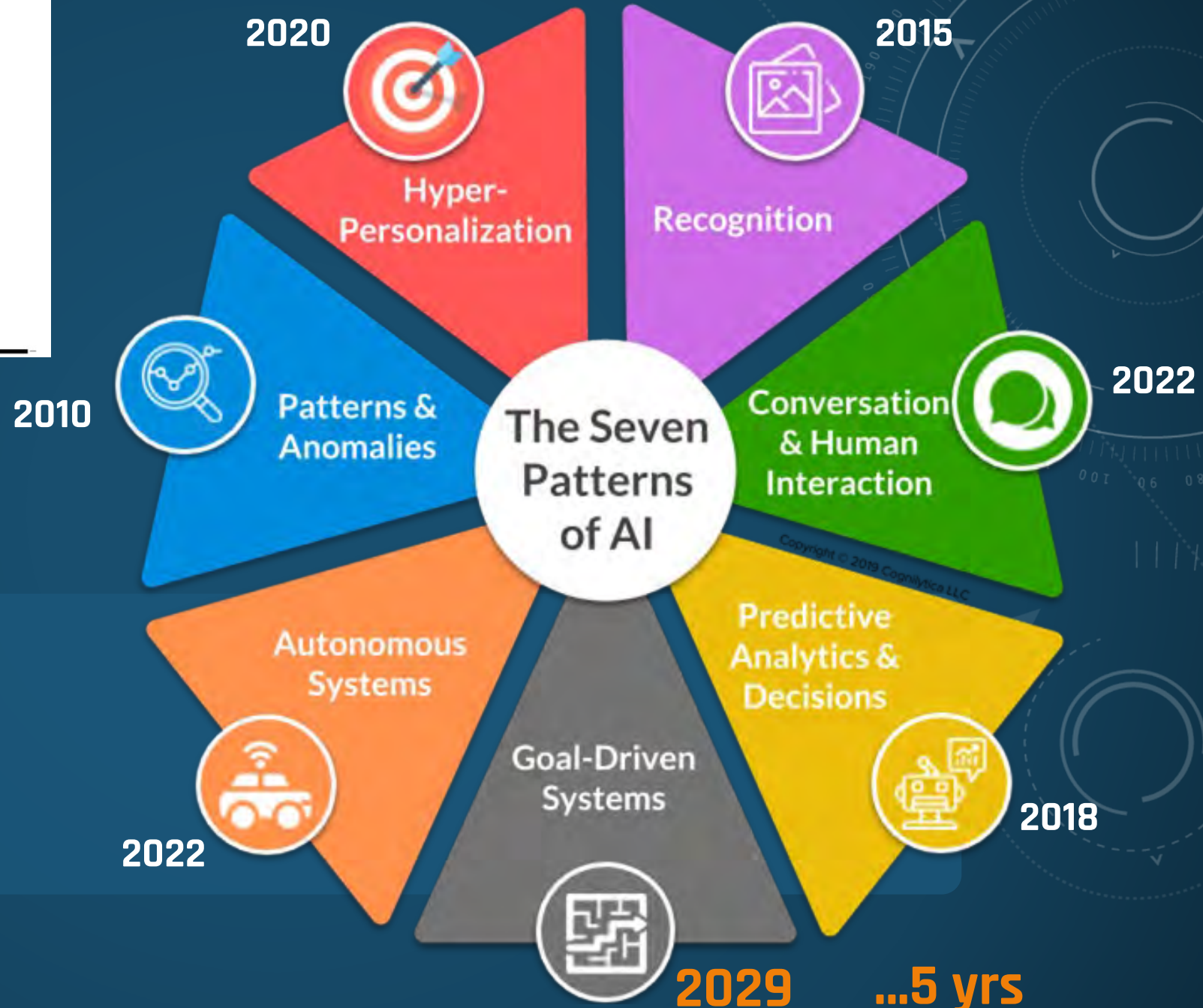
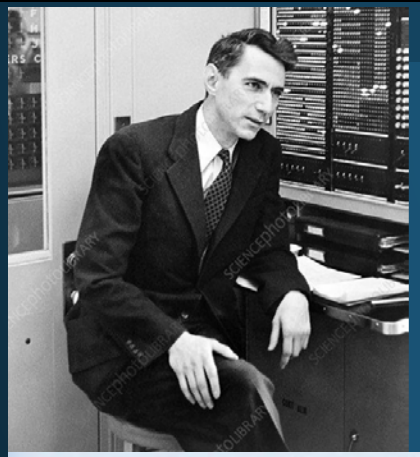
OBJECTIVES



AAA, looking for land for Datacenter
With possibility of building a Nuclear Plant

In 2029, 100BLN DataCenter, Stargate.



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Infrastructure & Hardware

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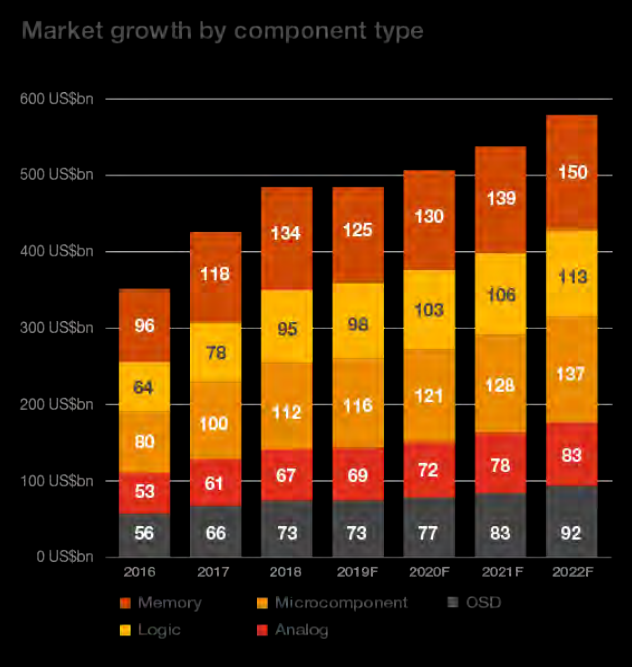

«The Ethic is: The Obedience to the unenforceable»

John Fletcher Mouton, Chimico, Ministro del munizionamento, 1942

AI has **no ethics**, it is we humans who use it with our genius

We will always be there in **our** processes.

Fighting against the **Halting Problem** and **Entropy.**

WE EVOLVE IN THIS WAY

NO HALTING PROBLEM

WE LIKE SOME ENTROPY

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THANK YOU

Nicola Grandis

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