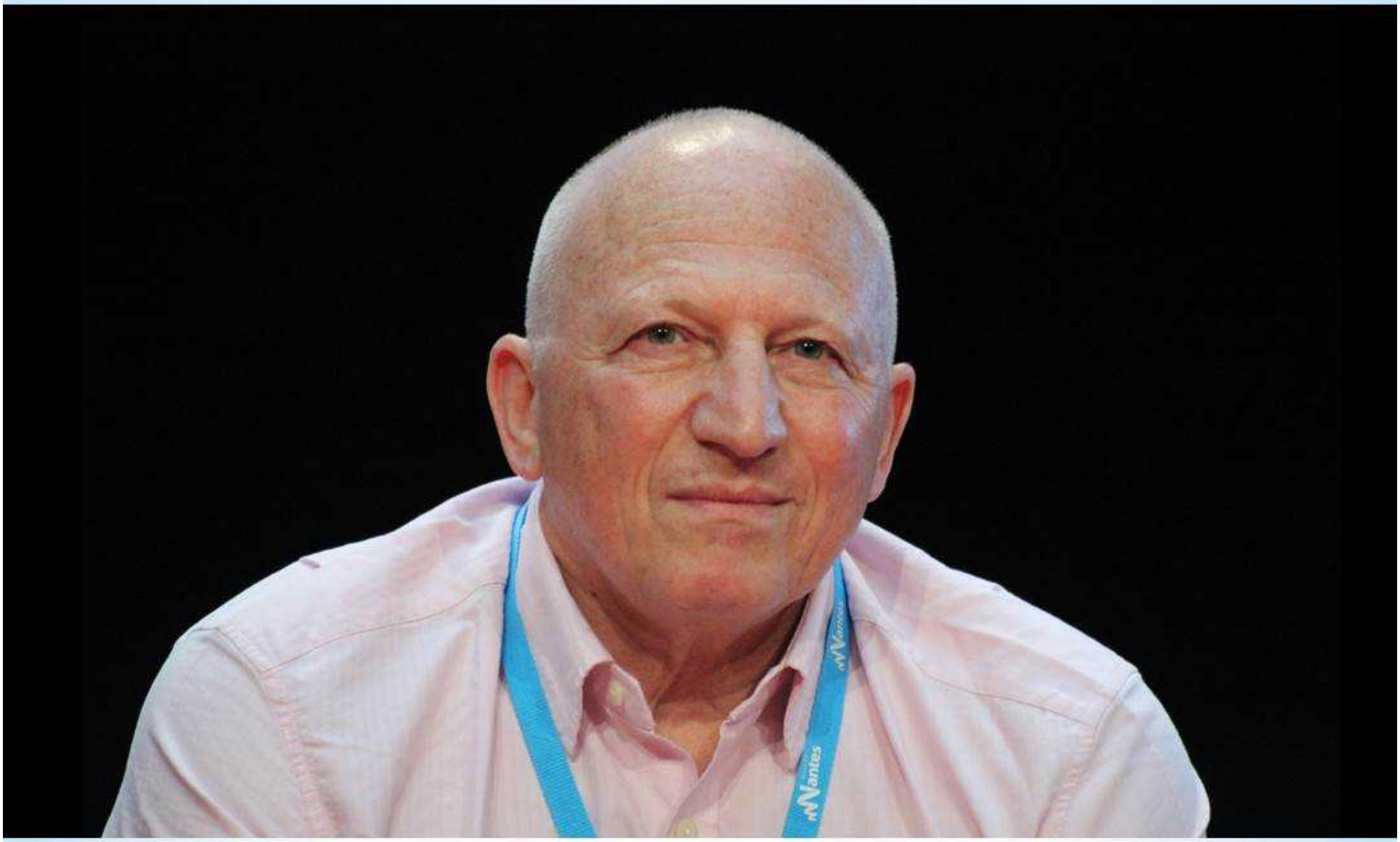
고등과학원 초학제 연구프로그램 올해의 주제 2019년도 연구

인공지능과 포스트휴머니즘

프랑스 인공지능 학자 초청 강연

AI and Post-humanism

- 일시: 2019년 6월 21일(금) 17:00 ~ 19:00
- 장소: 고등과학원 1호관 1층 국제회의실 (1114호)
- 강연: 인공지능과 포스트휴머니즘(장가브리엘 가나시아)
- 언어: 영어 (영-한 순차 통역)
- 주관: 인공지능과 포스트휴머니즘 연구단



장-가브리엘 가나시아 Jean-Gabriel GANASCIA (파리6대학교 정보학과)

1970년대부터 인공지능을 연구해온 과학자이자 철학자인 장가브리엘 가나시아는 최근 『특이점의 신화 : 인공지능을 두려워해야 하는가?』를 출간한 저자입니다. 이 저자의 초청 강연을 통해 장밋빛 희망과 파멸의 두려움을 동시에 불러일으키는 인공지능의 발전 전망과 한계, 이와 맞물려 떠오르는 휴머니즘 및 포스트휴머니즘에 대한 변화를 듣고 묻고 토론하는 학문의 장을 마련하고자 합니다.

- 주최: KIAS 고등과학원 초학제 연구프로그램, INSTITUT FRANÇAIS 주한 프랑스대사관-프랑스문화원

Artificial Intelligence and post-humanism



Jean-Gabriel Ganascia

ACASA team - LIP6 – CNRS (UMR 7606)

Sorbonne University

Institut Universitaire de France

Chairman of the CNRS Ethical Committee

4, place Jussieu, 75252 Paris Cedex 05, FRANCE

Jean-Gabriel.Ganascia@lip6.fr

Synoptic

1. What is Artificial Intelligence?
    1. Origin and History
    2. Misunderstanding
2. Over-estimations of AI
    1. Myths and Fears
    2. Technological Singularity
    3. Post-humanism
3. The New Human Condition



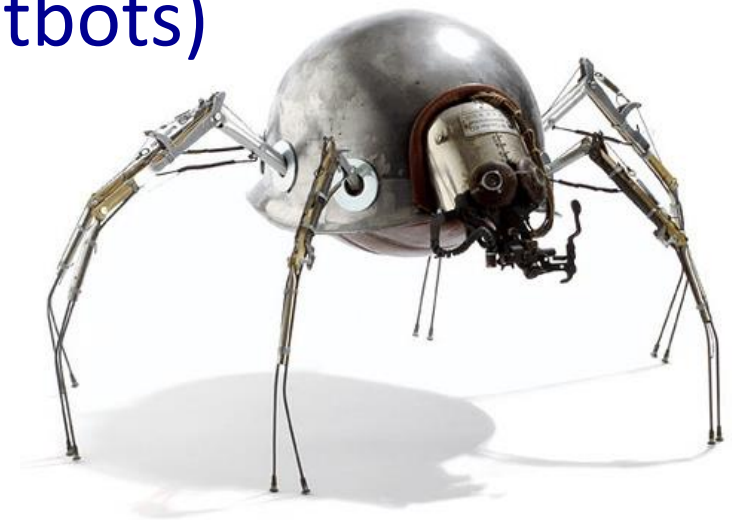
IN THEIR COUNTRY HOME NEAR BRISTOL, THESE PARENTS HAVE TWO CHILDREN: ONE IS ELECTRONIC.

Vivian Dovey and Grey Walter have two offspring: Timothy, a human baby and Elsie, the tortoise, of coils and electronic valves. Timothy is very friendly with his mechanized sister.


IN THIS BUILDING DURING THE SUMMER OF 1956
JOHN McCARTHY (DARTMOUTH COLLEGE), MARVIN L. MINSKY (MIT)
NATHANIEL ROCHESTER (IBM), AND CLAUDE SHANNON (BELL LABORATORIES)
CONDUCTED
THE DARTMOUTH SUMMER RESEARCH PROJECT
ON ARTIFICIAL INTELLIGENCE
FIRST USE OF THE TERM "ARTIFICIAL INTELLIGENCE"
FOUNDING OF ARTIFICIAL INTELLIGENCE AS A RESEARCH DISCIPLINE
"To proceed on the basis of the conjecture
that every aspect of learning or any other feature of intelligence
can in principle be so precisely described that a machine can be made to simulate it."
IN COMMEMORATION OF THE PROJECT'S 50th ANNIVERSARY
JULY 13, 2006

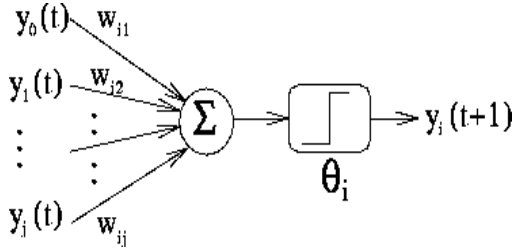
During the Last 60 Years, AI changed the World

- The Web
- Robots (and bots — Chatbots)
- Games (Chess, Go, …)
- Autonomous Vehicules
- Biometry
- Speech Recognition
- Natural Language Processing and Understanding
- Vision
- …

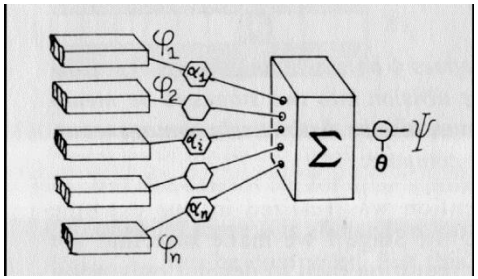


Machine Learning: Neural Networks

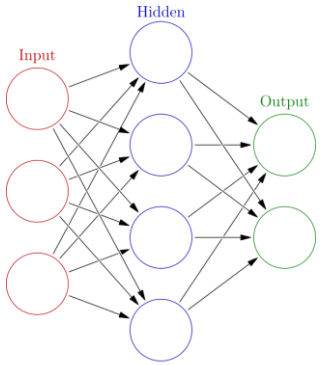
- Neural Networks – *1943 (McCulloch & Pitts)*



- Perceptron – *1958 (Rosenblatt)*



- Multi-layers Perceptrons – *1986 (Rumelhart, Hinton and McClelland)*

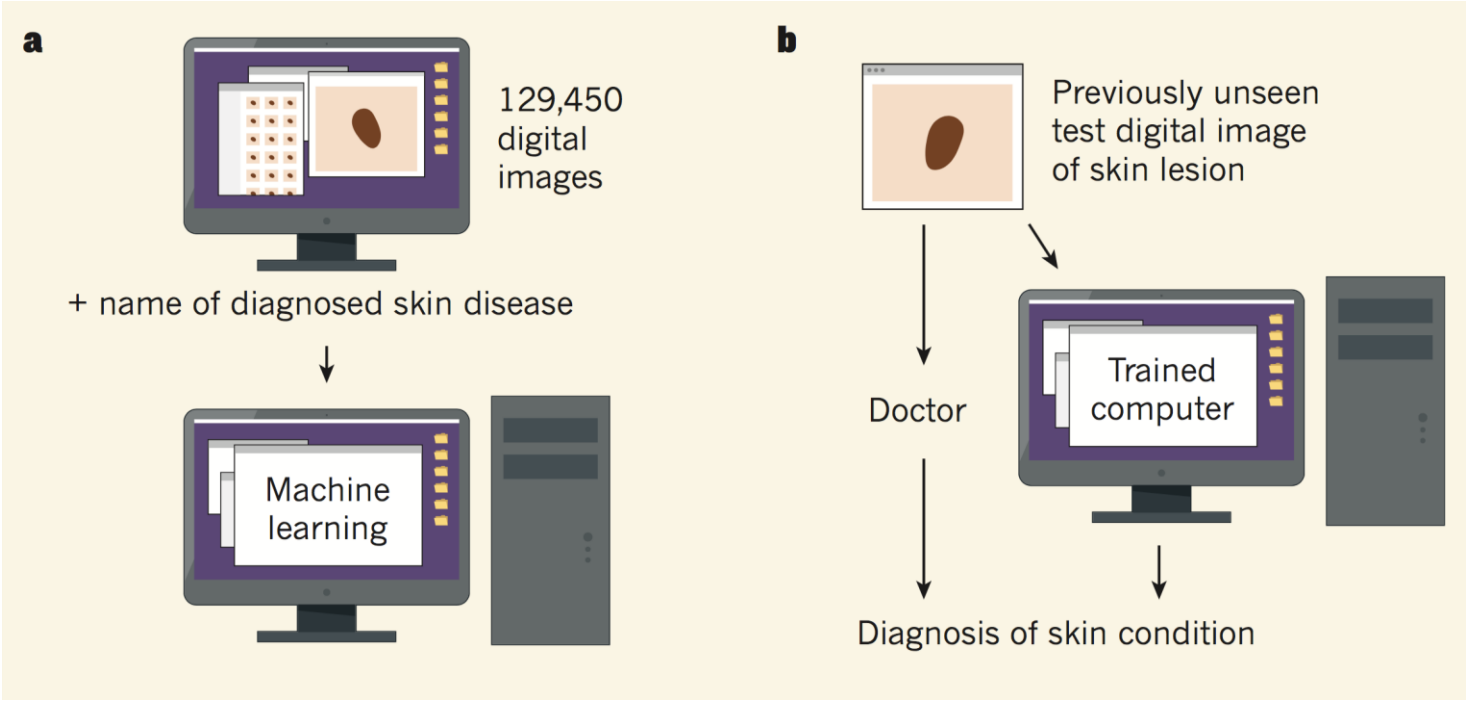


- Deep Learning – 2010 (Lecun, …)

Vision

e.g. Melanoma Diagnosis





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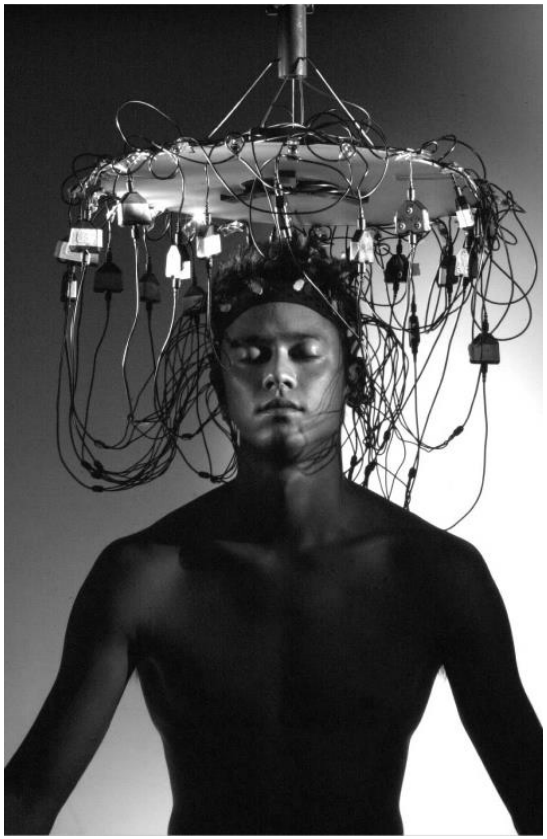
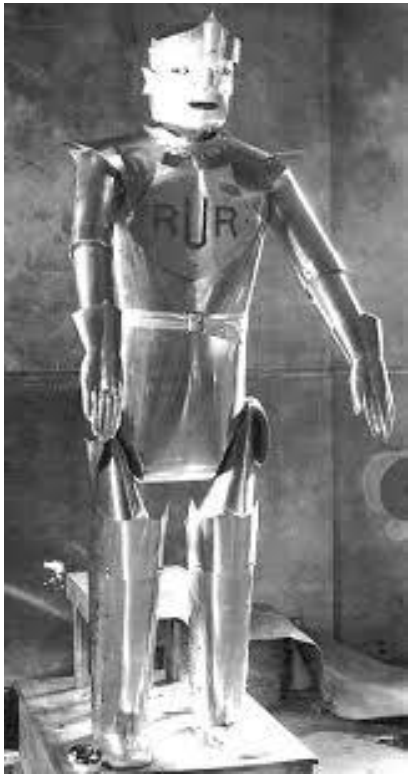
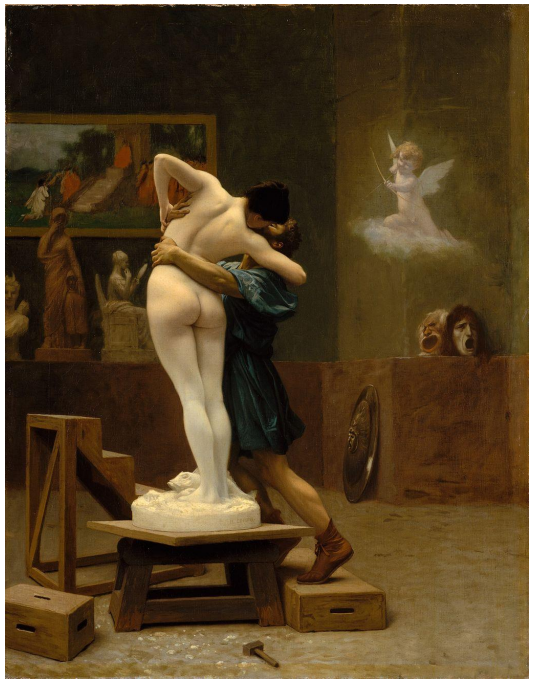


Misunderstanding: confusion with Myths

The Aim of Artificial Intelligence is not to Recreate an Intelligent Being!







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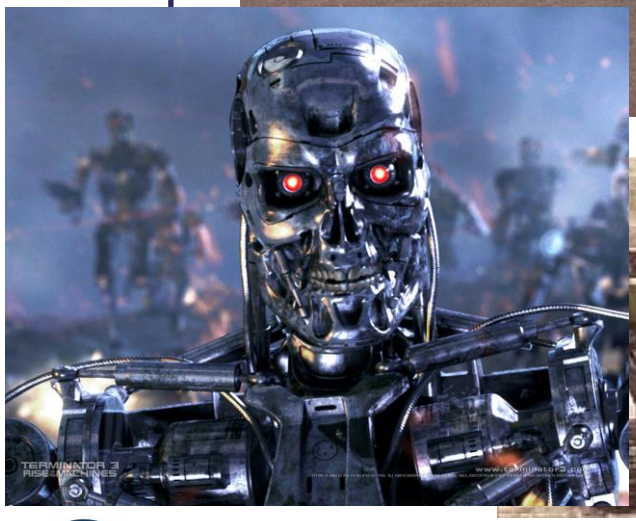
Lethal Autonomous Weapon Systems

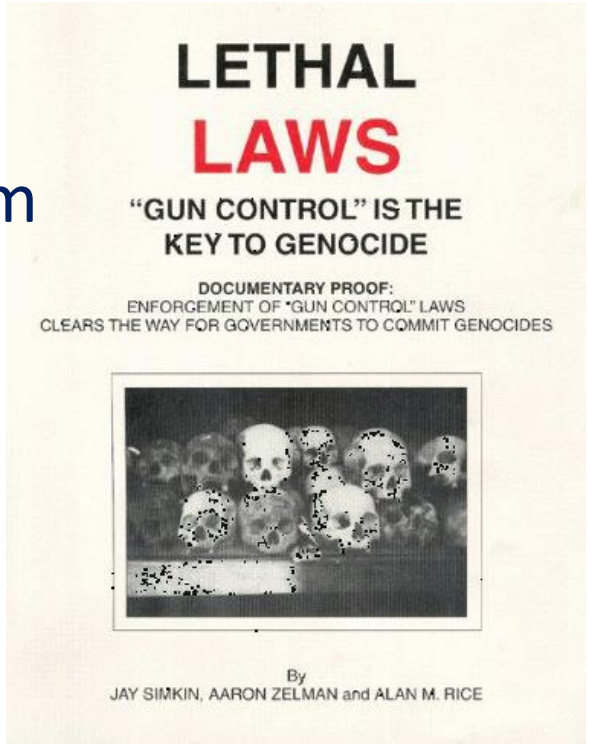
- LAWS ("killer robots")



The Myth of Golem







The Geminoids of Prof. Ishiguro

The Myth of Galathea







Sophia:

First robot to acquire Saudi citizenship

First robot to acquire Saudi citizenship



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Weak &/or Strong AI: a Pseudomorphosis?

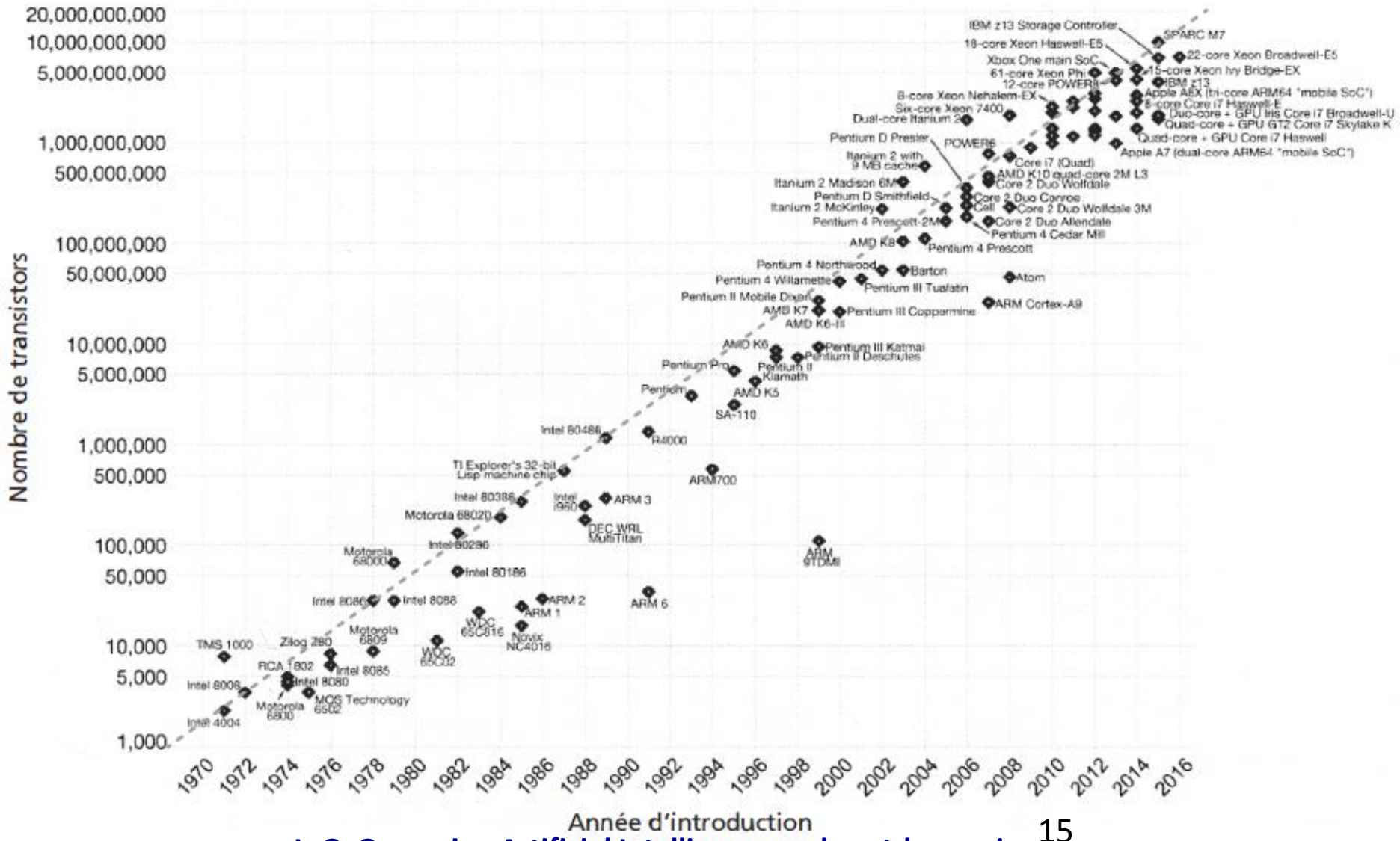
- Distinction (origin John Searle):
  - *Weak AI*
  - *Strong AI, Artificial General Intelligence*
- *Technological Singularity*:
  - singularity in the sense of the "Catastrophe Theory" (R. Thom)
  - Based on the hypothesis of the continuation of the Moore's Law







Moore's Law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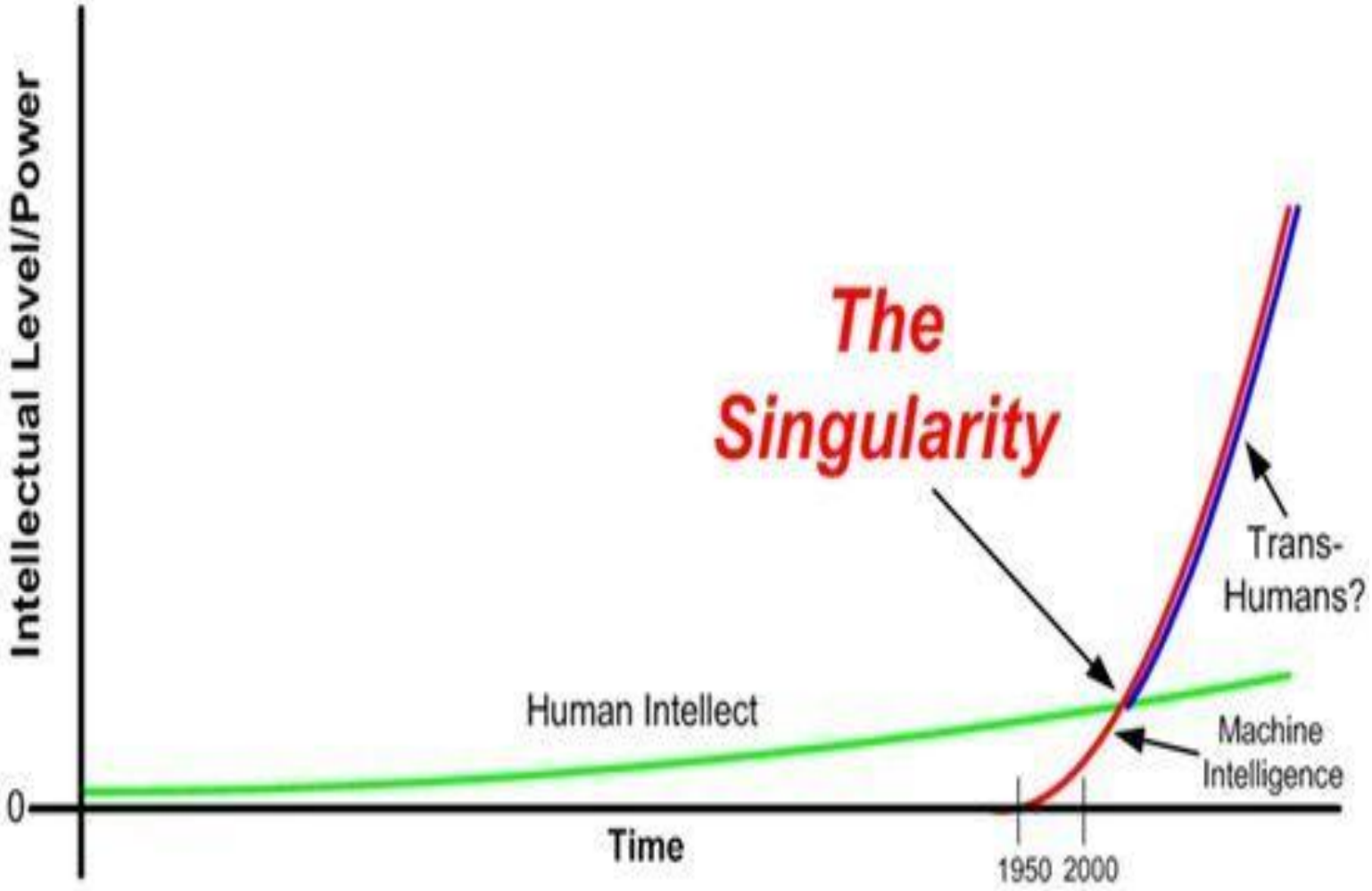
SPARC M7
18-core Xeon Haswell-E5
22-core Xeon Broadwell-E5
Xbox One main SoC
15-core Xeon Ivy Bridge-EX
61-core Xeon Phi
12-core POWER8
IBM z13
8-core Xeon Nehalem-EX
Apple A8X (tri-core ARM64 "mobile SoC")
Six-core Xeon 7400
8-core Core i7 Haswell-E
Dual-core Itanium 2
Duo-core + GPU Iris Core i7 Broadwell-U
Quad-core + GPU GT2 Core i7 Skylake K
Pentium D Presler
POWER6
Quad-core + GPU Core i7 Haswell
Itanium 2 with 9 MB cache
Apple A7 (dual-core ARM64 "mobile SoC")
Core i7 (Quad)
AMD K10 quad-core 2M L3
Itanium 2 Madison 6M
Core 2 Duo Wolfdale
Pentium D Smithfield
Core 2 Duo Conroe
Itanium 2 McKinley
Cell
Core 2 Duo Wolfdale 3M
Pentium 4 Prescott-2M
Core 2 Duo Allendale
Pentium 4 Cedar Mill
AMD K8
Pentium 4 Prescott
Pentium 4 Northwood
Barton
Atom
Pentium 4 Willamette
Pentium III Tualatin
Pentium II Mobile Dixon
ARM Cortex-A9
AMD K7
Pentium III Coppermine
AMD K6-III
AMD K6
Pentium III Katmai
Pentium II Deschutes
Pentium Pro
Pentium II Klamath
Pentium
AMD K5
SA-110
Intel 80486
R4000
TI Explorer's 32-bit Lisp machine chip
ARM700
Intel 80386
Intel i960
ARM 3
Motorola 68020
DEC WRL MultiTitan
Intel 80286
ARM 9TDMI
Motorola 68000
Intel 80186
Intel 8086
Intel 8088
ARM 2
ARM 1
ARM 6
WDC 65C816
Motorola 6809
Novix NC4016
WDC 65C02
TMS 1000
Zilog Z80
RCA 1802
Intel 8085
Intel 8080
Intel 8008
MOS Technology 6502
Motorola 6800
Intel 4004

Immortality:
the technological Singularity



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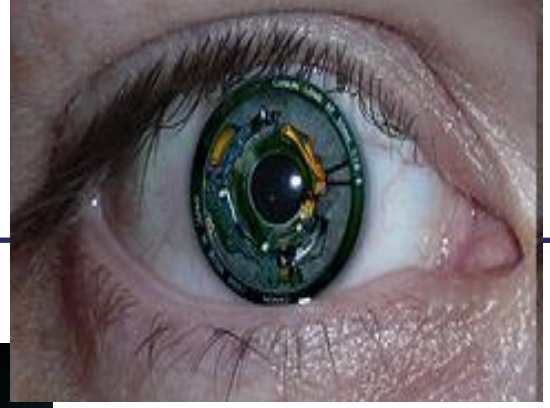
Mind Uploading



The cyborg



Elon Musk – March 2017

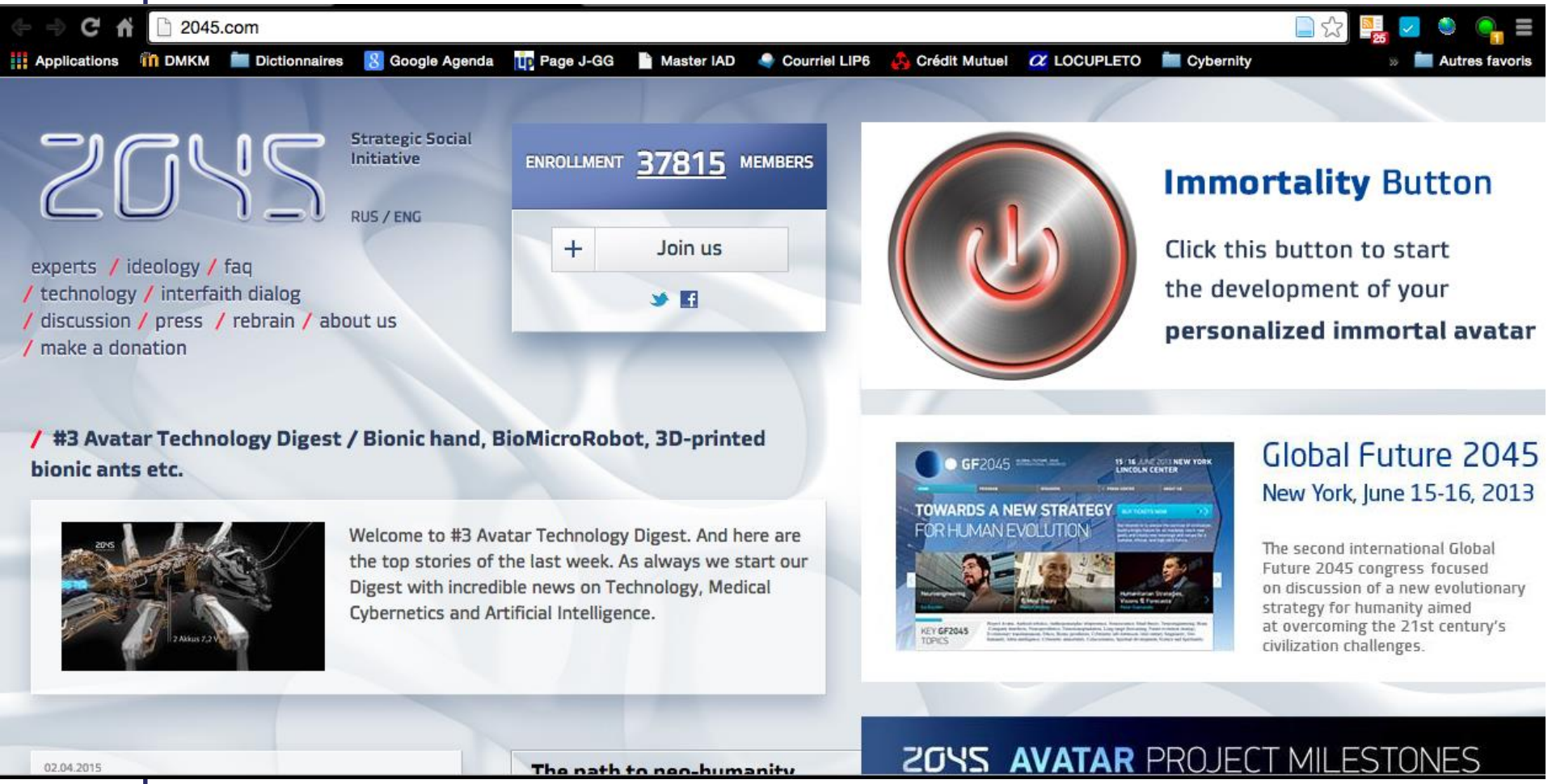
- Neuralink company
- Brain implants
  - Step 1: medical purpose
  - Step 2: memory and intelligence augmentation (putting a chip in our brain)







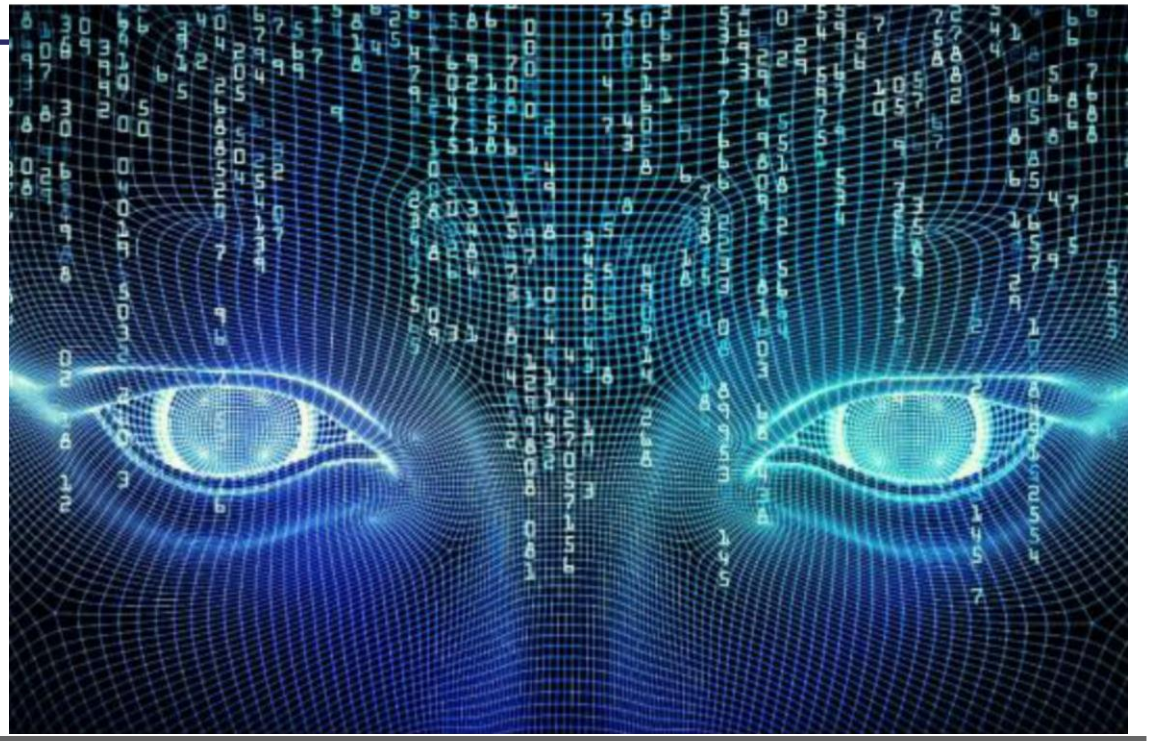
From Technological Singularity to Post-humanism



A New Religion!

Way of the Future: Una religión que desarrolla un dios de Inteligencia Artificial

La organización religiosa fue fundada por un exempleado de Google y Uber.



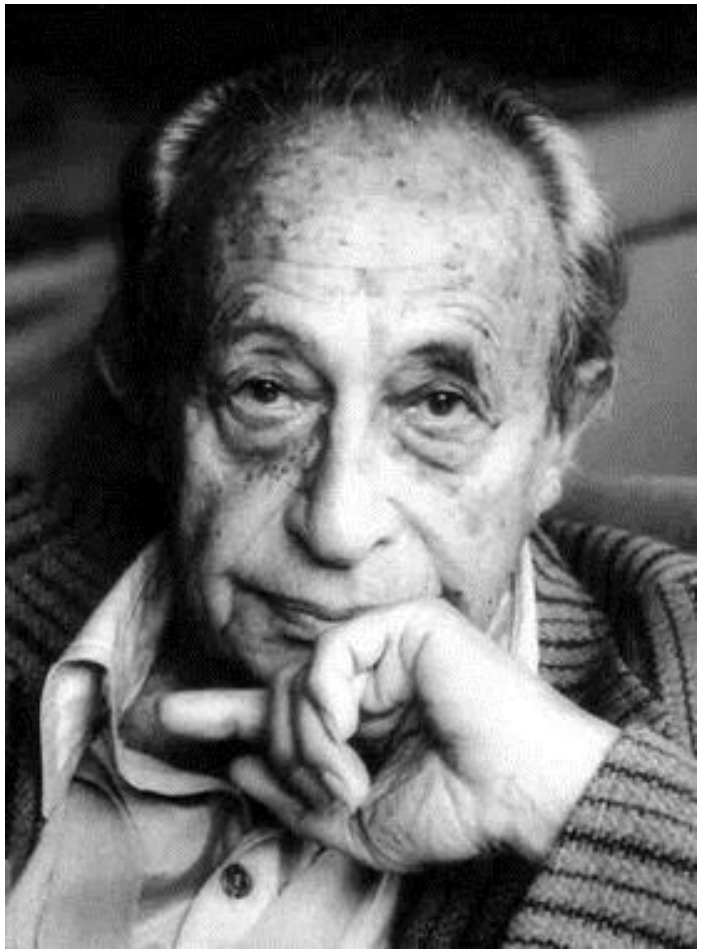
Way of the Future Church

Humans United in support of AI, committed to peaceful transition to the precipice of consciousness.

What is this all about?

Way of the Future (WOTF) is about creating a peaceful and respectful transition of who is in charge of the planet from people to people + "machines". Given that technology will "relatively soon" be able to surpass human abilities,

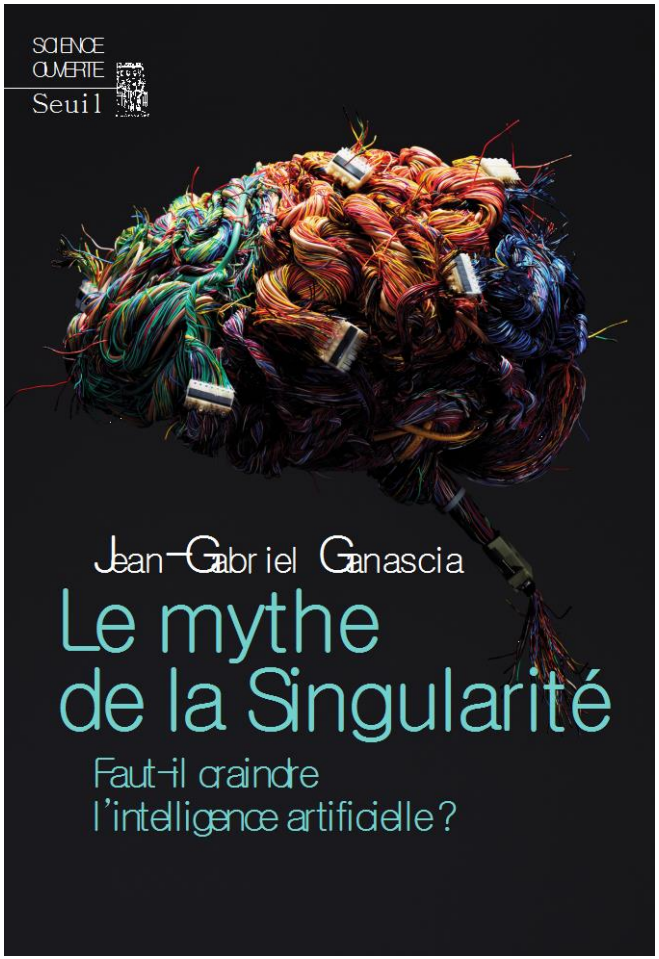
Does Hans Jonas' "heuristic of fear" apply?



- Should we be concerned even if science has not yet made it possible to accurately assess the risks?
- In the case of ecological threat, we are!
- In the case of machines, not, because only humans are conscious.

The Technological Singularity





- Exponential acceleration of Technology (Moore's Law)
  - End of Moore'law: *the silicium wall*
  - Frequency of computation ≠ counsciousness
- Machine Autonomy: Machine Learning & *big data*
  - *Restricted to Supervised Learning*
  - *Paradigme Changes*
- "Pyromaniac Firefighters"

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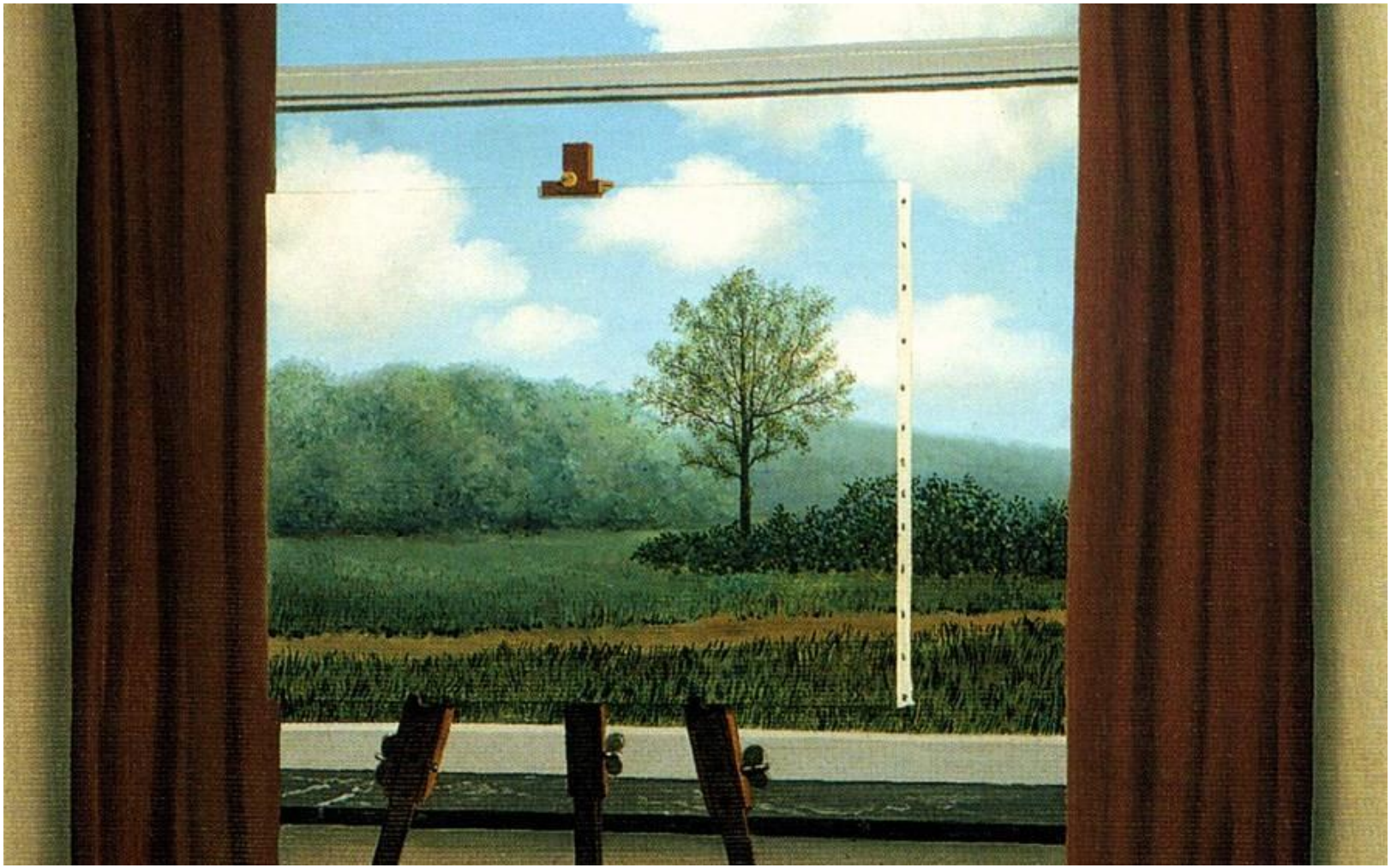
The New Human Condition



Re-ontologisation of human societies

Evolution of human relations

- Friendship (social networks)
- Reputation (reputation score)
- Confidence (blockchain)
- Money (paypal, bitcoin, …)
- Work
- Sovereignty
- …





Political Issues : End of State Sovereignty

State's Prerogatives

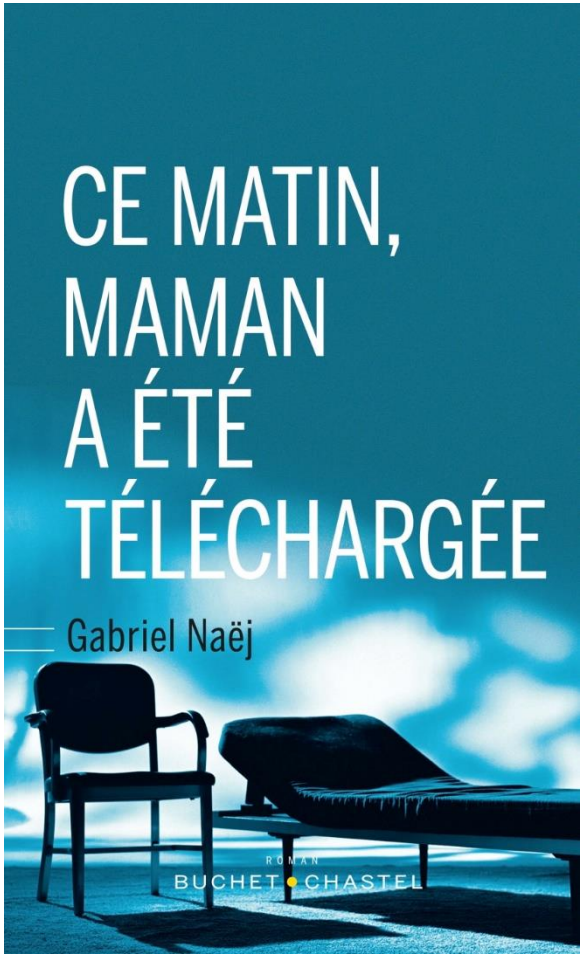
- Defense
  - Cyber-security (acquisition of defensive and offensive cyber-weapons by the Web Giants)
- Homeland Security
  - Facial recognition
  - Civil Status – Social Networks (ESTA)
  - Big Data Processing - Palantir
- Finance
  - Money – Paypal, Bitcoin
  - Collecting Taxes: land registry (Google)
- Justice
  - Preventive Justice (US)
  - Site https://crowdlaw.org/: crowdsourcing

Other Attributes of Sovereignty

- Health
- Education
- …



Post-conclusion: confession!



1. I made me wrong!
2. Singularity has come to pass
3. And, things are going worst for me, Mom, my real mother has downloaded her mind
4. And besides, she reincarnated in a sex robot, which bothers me a lot.
5. And, she bursts into my life at any time....