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Director, Venezuela Node

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NASA Ames, California, USA



How to Create a Mind

Ray Kurzweil

Cómo crear una mente

El secreto del pensamiento humano



2029: año en el que la inteligencia artificial no podrá distinguirse de la humana. Este es el horizonte hacia el que mira *Cómo crear una mente*.

Siguiendo la estela de *La Singularidad está cerca*, su libro anterior, el autor recorre la curva del crecimiento exponencial de la tecnología hasta el momento en el que la inteligencia de los ordenadores alcanza a la

del hombre. ¿Qué pasará entonces? Si la creación de máquinas cada vez más potentes es una capacidad humana, entonces las máquinas también heredarán esta capacidad, pero con todas las ventajas que conllevan los sustratos no biológicos. Esto dará lugar a posteriores generaciones de máquinas cada vez más potentes que acompañarán al hombre hacia la singularidad tecnológica.

Ray Kurzweil explica el itinerario que el hombre está siguiendo para lograr este objetivo, así como la manera precisa en la que está llevando a cabo esta transformación. Según el autor, el futuro inteligente de las máquinas converge con el de los humanos, ya que seremos capaces de incorporar dicha inteligencia a nuestros propios cuerpos.

¿Cómo será el mundo en este escenario? Descúbralo con la lectura de este apasionante libro.

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books



www.lolabooks.eu



The Millennium Project



Global futurist think-tank with 50 nodes around the world



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Medicine, Neuroscience
and
Human Enhancement

AI and Robotics

Singularity University
Preparing Humanity for
Accelerating Technological Change

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Preparing Humanity for
Accelerating Technological Change

Revolution
in Egypt

Joe Klein: What the U.S. should do
On the Street: Hope meets anxiety
Muslim Brotherhood: What it wants

Oscars:
Portraits of
star power

TIME

2045

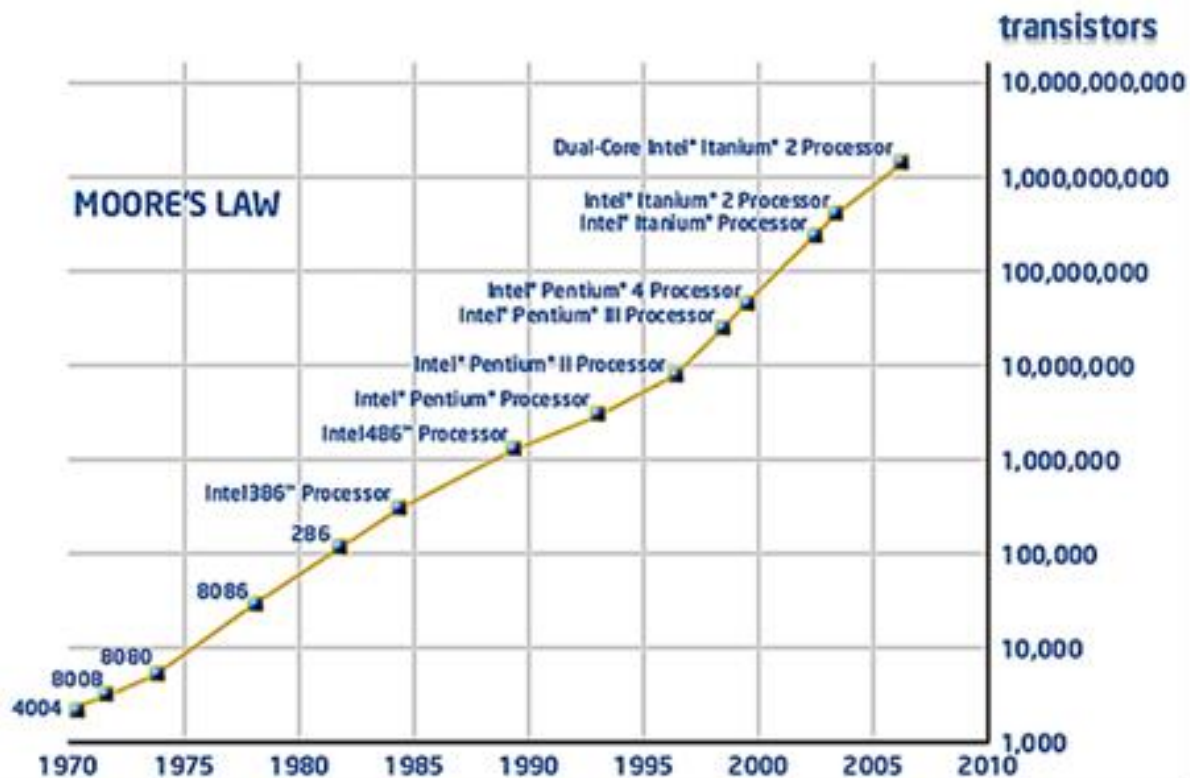
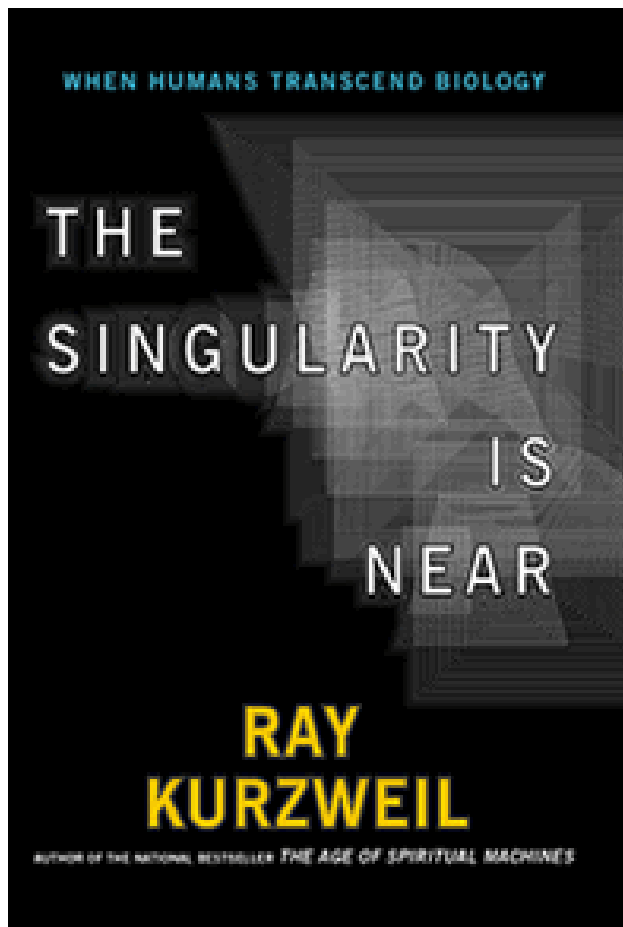
The Year Man Becomes Immortal*

BY LEV GROSSMAN

*If you believe
humans and
machines will
become one.
Welcome to
the Singularity
movement

Ray Kurzweil (MIT): *The Singularity is Near*

- www.singularity.com
- Bill Gates







[home](#)

health and traits

- ▶ Clinical Reports
- Research Reports

ancestry

- Maternal Line
- Paternal Line
- Ancestry Painting
- Global Similarity

genome sharing

- Manage Sharing
- Compare Genes
- Family Inheritance

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- 23andMe Community
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- Pregnancy

account

health and traits

These tables list those [clinical reports](#) we consider most notable based on your genetic information.








Move your mouse over the colored bars or icons for a glance at your data. Click the name of any disease or trait for your full report.

Clinical Reports

Research Reports (86)


Show data for:

Disease Risks ?

	Age-related Macular Degeneration
	Celiac Disease
	Psoriasis
	Type 2 Diabetes
	Prostate Cancer 
	1 locked report

[See all 10 risk reports...](#)

Carrier Status ?

Alpha-1 Antitrypsin Deficiency	Variant Absent
Bloom's Syndrome	Variant Absent
Cystic Fibrosis (Delta F508 mutation)	Variant Absent
G6PD Deficiency	Variant Absent
Glycogen Storage Disease Type 1a	Variant Absent
	1 locked report

[See all 8 carrier status...](#)

Traits ?

Alcohol Flush Reaction	Does Not Flush
Bitter Taste Perception	Can Taste
Earwax Type	Wet
Eye Color	Likely Brown
Lactose Intolerance	Likely Tolerant

Drug Response ?

Warfarin (Coumadin®) Sensitivity	Increased
Clopidogrel (Plavix®) Efficacy	Typical

[my home](#)

health and traits

[Clinical Reports](#)
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[Inbox](#)

paternal line

Your Y chromosome DNA determines your paternal haplogroup. [What is a haplogroup?](#)

Map

[History](#)

[Haplogroup Tree](#)

Your paternal haplogroup may have changed. This is due to a recent update to our paternal haplogroup tree. Find out more about this feature improvement at the [Spittoon](#).

Paternal Haplogroup: R1b1b2a1a2

R1b1b2a1a2 is a subgroup of R1b1b2, which is described below.

Locations of haplogroup R1b1b2 circa 500 years ago, before the era of intercontinental travel.



R1b1b2 is the most common haplogroup in western Europe, where its branches are clustered in various national populations. R1b1b2a1a2b is characteristic of the Basque, while R1b1b2a1a2f2 reaches its peak in Ireland and R1b1b2a1a1 is most commonly found on the fringes of the North Sea.

[Human Prehistory Video](#)

Haplogroup: R1b1b2, a subgroup of [R1b1b](#)

Age: 17,000 years

Region: Europe

Populations: Irish, Basques, British, French

Highlight: R1b1b2 is the most common haplogroup in western Europe, with distinct branches in specific regions.

Your Family and Friends

[D2a1](#) Japanese Person

[E1b1a8a..](#) Nigerian Person

[N](#) Chinese Person

[R1b1b2a..](#) Jose Cordeiro

Famous People

[C3](#) Genghis Khan

[my home](#)

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maternal line

Your mitochondrial DNA determines your maternal haplogroup. [What is a haplogroup?](#)

Map

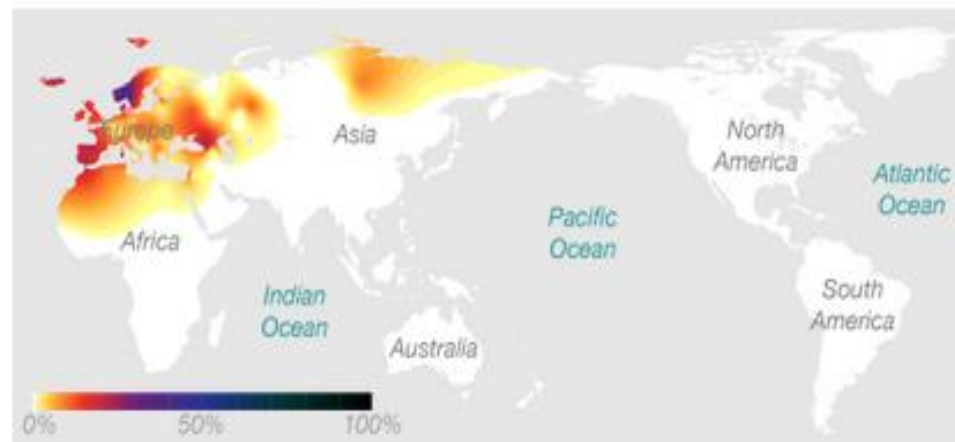
History

Haplogroup Tree

Maternal Haplogroup: H1*

H1* is a subgroup of H1, which is described below.

Locations of haplogroup H1 circa 500 years ago, before the era of intercontinental travel.



Haplogroup H1 is widespread in Europe, especially the western part of the continent. It originated about 13,000 years ago, not long after the Ice Age ended.

Haplogroup: H1, a subgroup of [H](#)

Age: 13,000 years

Region: Europe, Near East, Central Asia, Northwestern Africa

Populations:

Spanish, Berbers, Lebanese

Highlight: H1 appears to have been common in Doggerland, an ancient land now flooded by the North Sea.

Your Family and Friends

[D4e2](#) Japanese Person

[D5a2](#) Chinese Person

[H1*](#) Jose Cordeiro

[L3e](#) Nigerian Person

Famous People

[H](#) Marie Antoinette

Human Prehistory Video



[Human Prehistory: Prologue](#)

[my home](#)

family inheritance

health and traits

Clinical Reports

Research Reports

ancestry

Maternal Line

Paternal Line

Ancestry Painting

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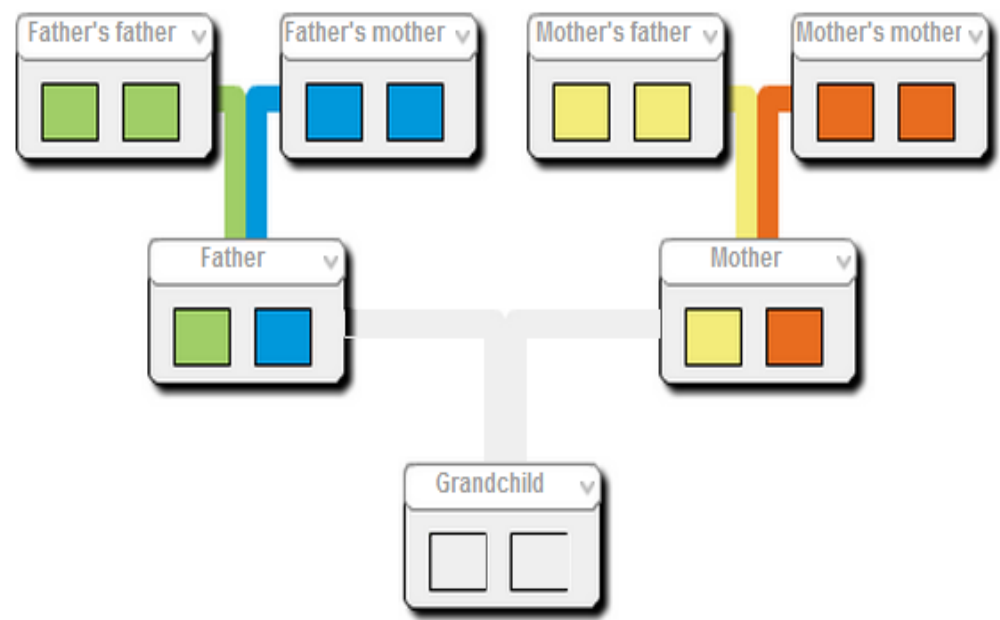
Genome View

GrandTree

Inheritance Calculator

[Tell me how to use this feature...](#)

Please select a grandchild for comparison.
Click on the down-arrow labeled "Grandchild" in the bottom box of the family tree.



Click on a trait for comparison:

- Genome-Wide Comparison**
Comparison across all of the genome data
- Bitter Tasting**
Genes related to bitter tasting
- Circadian Rhythm**
Genes related to regulating your internal clock
- Endurance**
Genes related to physical endurance
- Female Fertility**
Genes related to fertility in women
- Immune System Compatibility**

🏠 [my home](#)

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- Inbox (1)
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- Browse Raw Data

family inheritance

Genome View


GrandTree

Inheritance Calculator

Find out what traits ([phenotypes](#)) and [genotypes](#) a child might have based on the selected pair of parents.



Jose Cordeiro

Bj Price



Offspring's Possible Traits
[How are these calculated?](#)

Alcohol Flush Reaction

[View Your Alcohol Flush Reaction Report](#)

GG

GG

- 100% 😊 Little or no flush (GG)
- 0% 😐 Moderate flush
- 0% 😞 Extreme flush

Bitter Taste Perception

[View Your Bitter Taste Perception Report](#)

GG

CG

- 100% 😞 Bitter taster (GG, CG)
- 0% 😊 Non-bitter taster

Earwax

[View Your Earwax Report](#)

CC

CC

- 100% 🖌️ Wet earwax (CC)
- 0% 🖌️ Dry earwax

Eye Color

[View Your Eye Color Report](#)

AA

AG

- 71% 👁️ Brown/Black eyes (AA, AG)
- 26% 👁️ Green/Hazel eyes (AA, AG)
- 4% 👁️ Blue/Gray eyes (AA, AG)

Sequencing the genome: cost and time

Year	Cost (US\$)	Time
2003	1,000,000.000	13 years
2007	100,000,000	4 years
2008	1,000,000	2 months
2010	10,000	4 weeks
2015	1,000	5 days
2020	100	1 hour

Exponentially

Faster

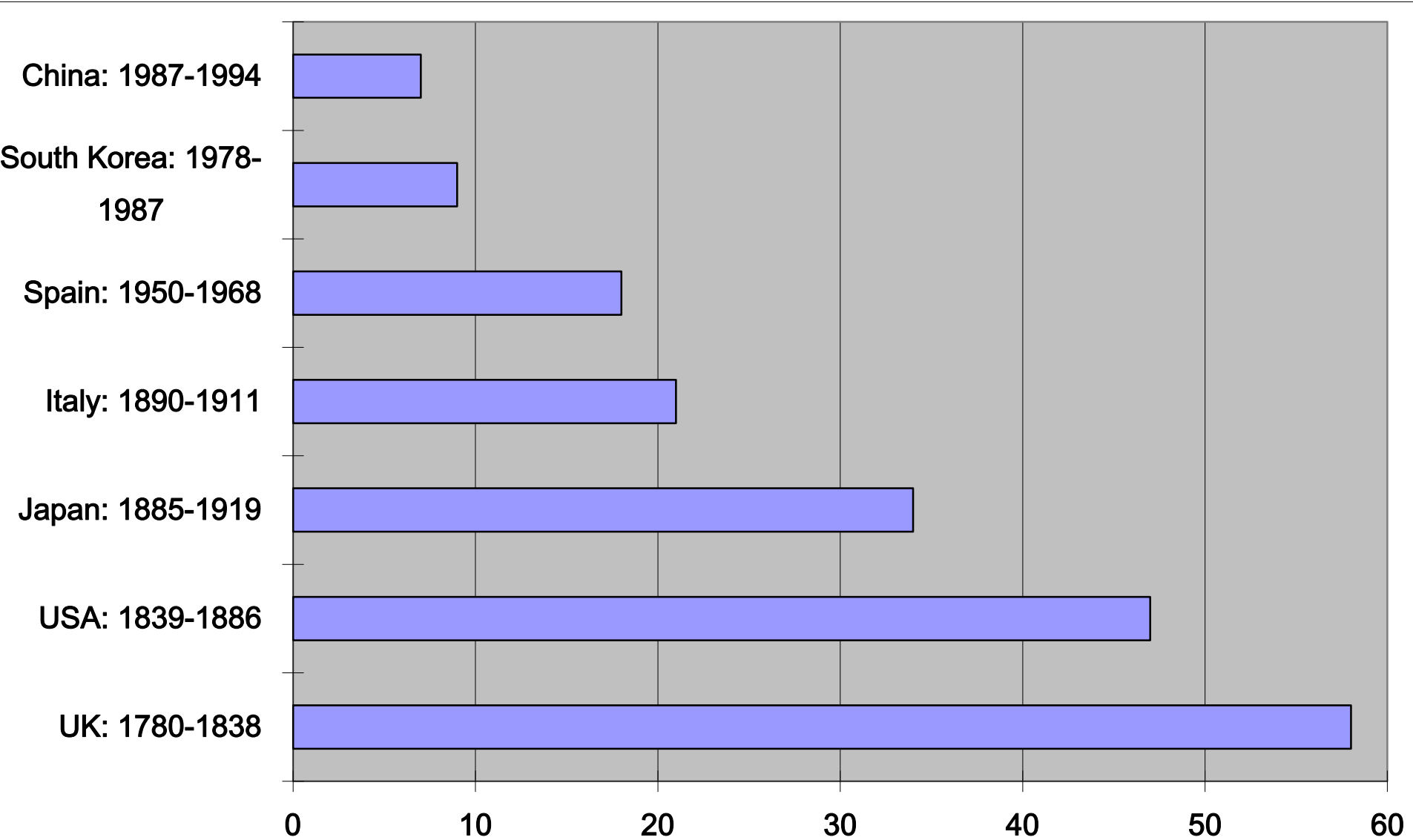
Smaller

Cheaper

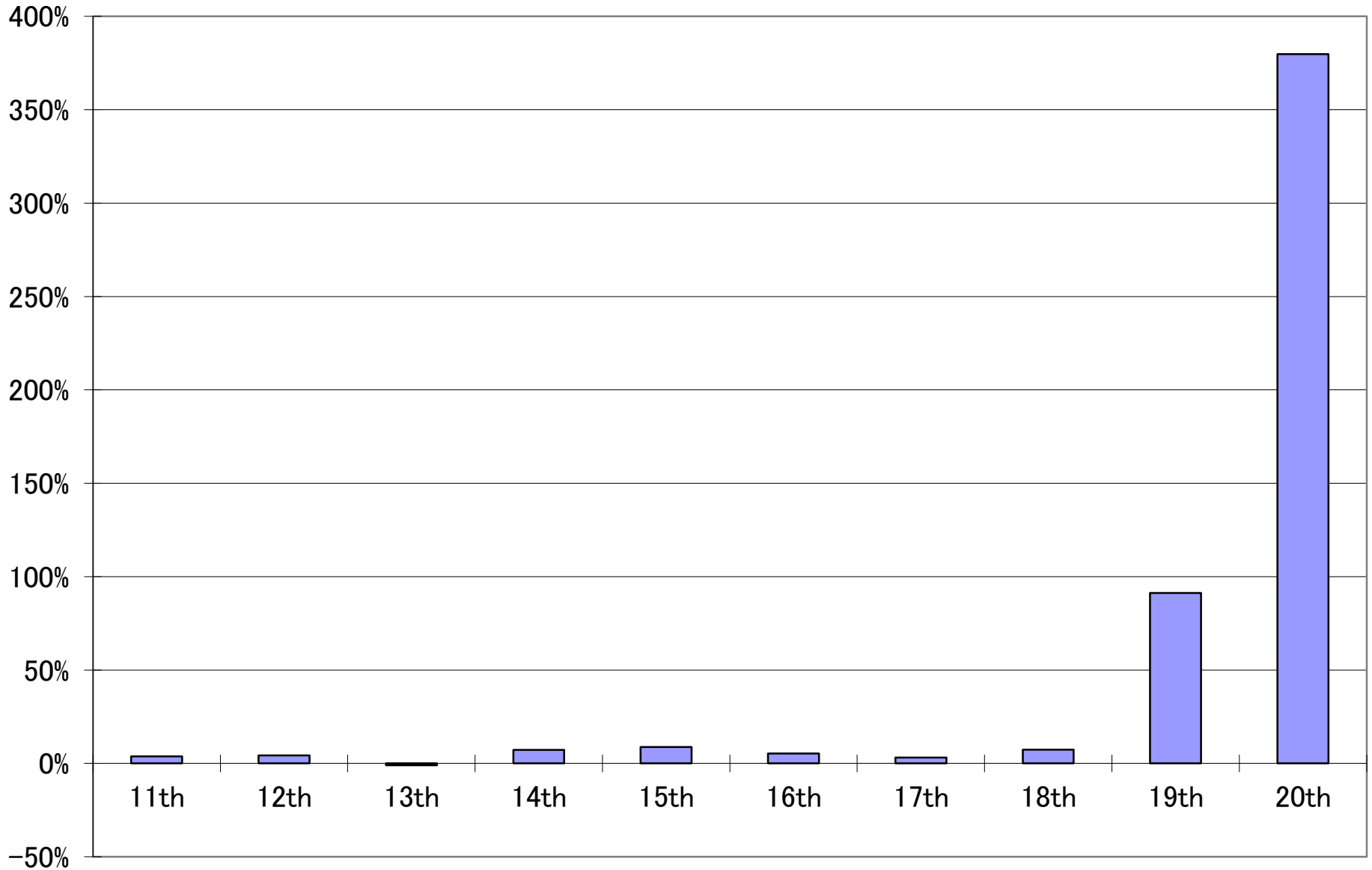
Better



Development is faster and faster



Economy: the growth of growth



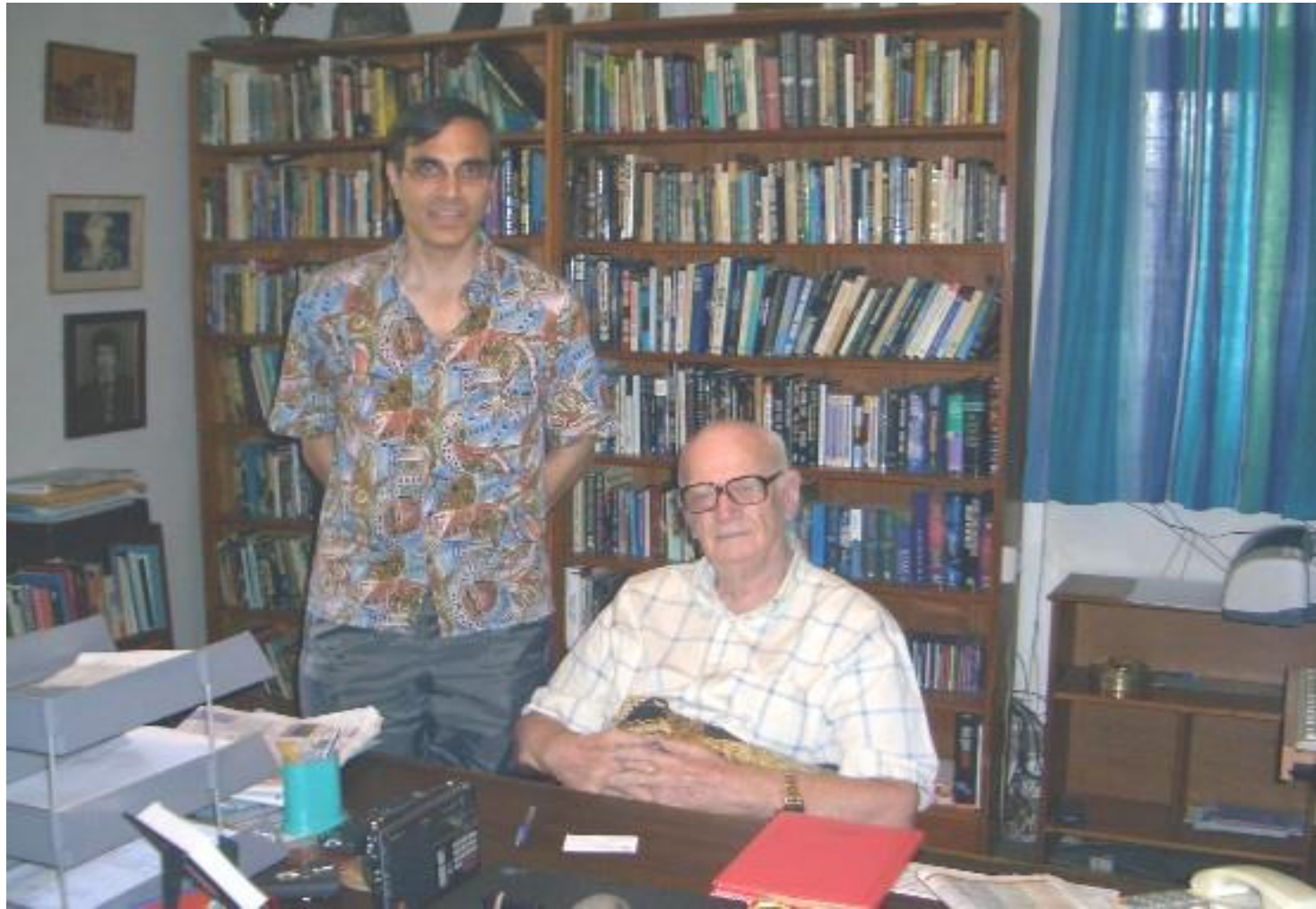
Attitudes towards the future



- Passive (**ostrich**) Suffer the future
- Reactive (**fire fighter**) Respond
- Preactive (**insurer**) Prepare
- Proactive (**builder**) Create



Sir Arthur C. Clarke with Jose Cordeiro



The Three Laws of **Sir Arthur C. Clarke**

- **First Law:** When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong.
- **Second Law:** The only way of discovering the limits of the possible is to venture a little way past them into the impossible.
- **Third Law:** Any sufficiently advanced technology is indistinguishable from magic.

Technologies of the “past”

- 30 years ago

Personal computers

- 20 years ago

Cell phones

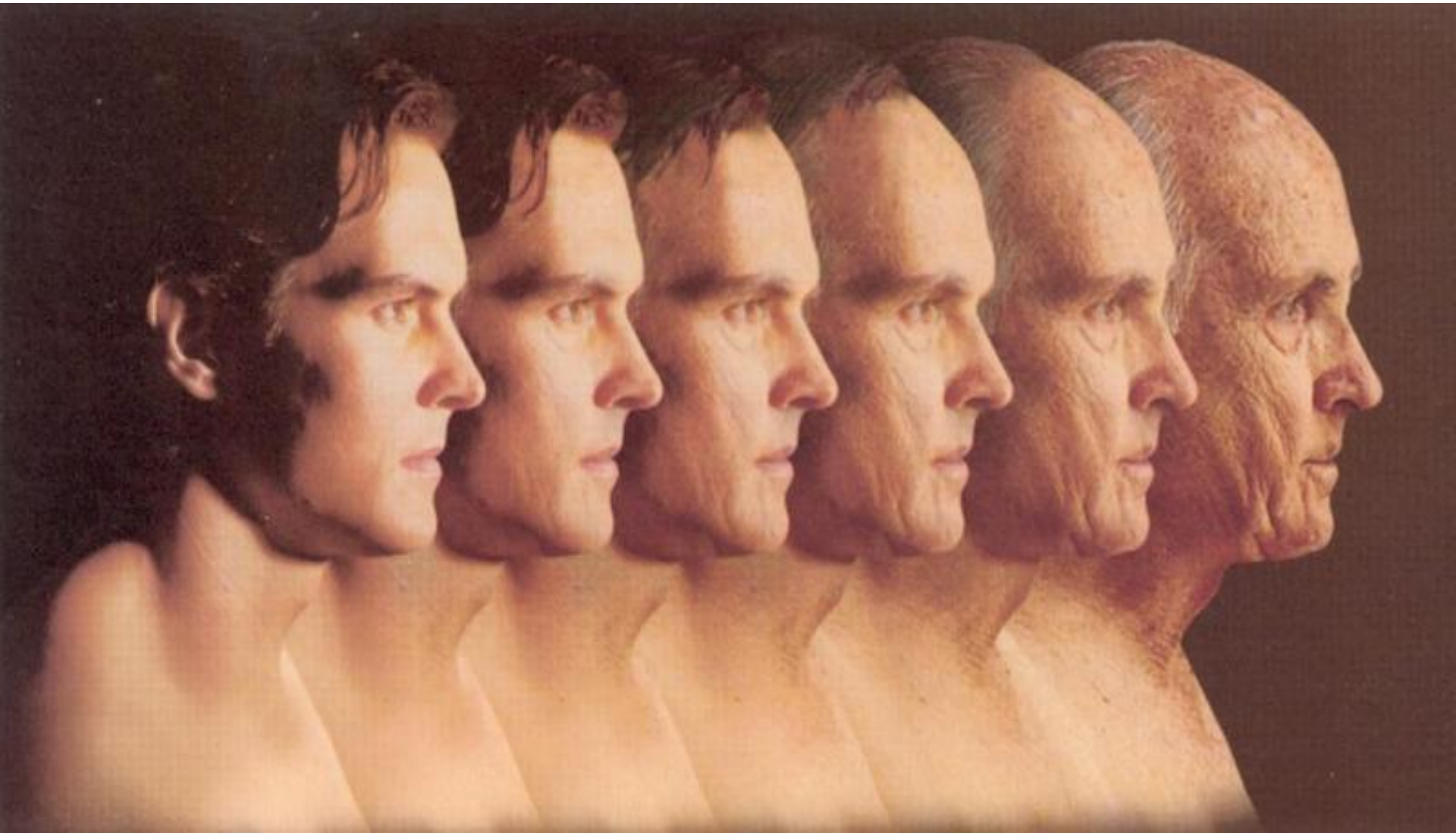
- 10 years ago

Google

- What will happen in 10 years? In 20 years? In 30 years?

Immortal (ageless) cells!

Aging as a disease? And **curable**?





Mp Mprize
accelerating life extension therapies

My Bridge 4 Life™

NewOrgan Prize

Mprize

- Overview
- History of Science Prizes
- Current Competitions
- Meet the Competitors
- Latest Mprize Winners
- How to Compete
- Scientific Advisory Board

Investing in the Future



The Mprize, introduced in 2003, is designed to directly accelerate the development of revolutionary new life extension therapies. The prize pot continues to grow through donations; awards are made whenever a research team extends the life of mice. There are two categories of cash prizes:

- **Longevity** - to the research team that breaks the world record for the oldest-ever mouse
- **Rejuvenation** - to the team that develops the most successful late-onset rejuvenation that extends the life of the mice

The prize makes it possible to attract scientists from major universities [Andrzej Bartke](#), Southern Illinois University who headed the team that holds the world record for longevity and [Dr. Stephen Spindler](#), University of California, the prize holder for rejuvenation. In 2009 the first Special Mprize Achievement Award went to [Dr. Z. David](#) for the successful healthy life extension of already aged mice using a pharmaceutical rapamycin.

[Meet the Competitors](#)

[Competition Rules and Application](#)

[Scientific Advisory Board](#): Meet the prize scientists who share our vision and enhance our ability to change the future of aging.

Life extension results: **today, now!**



x 3 times



x 4 times



x 6 times

Physical Immortality: Death of Death

1. Germinal cells (good)

2. Cancer cells (bad)



TIME

CAN
Google
SOLVE
DEATH?

The search giant is launching a venture to extend the human life span.

That would be crazy—if it weren't Google

By Harry McCracken and Lew Grossman

Mind uploading



Shop by Department ▾

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Hello, Jose
Your Account ▾

Books

Advanced Search

New Releases

Best Sellers

The New York Times® Best Sellers

Children's Books

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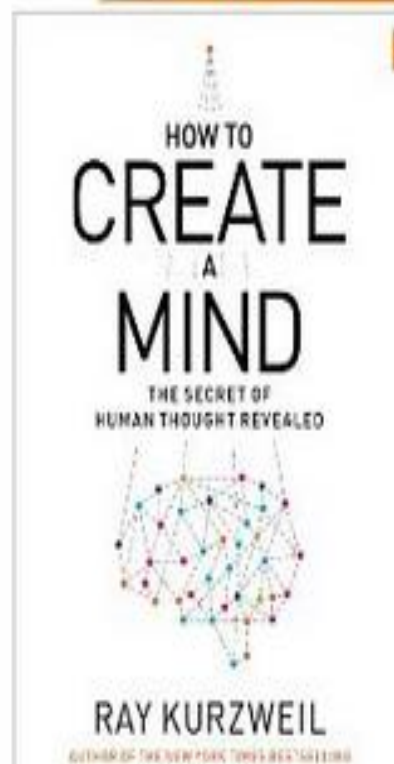
Best



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How to Create a Mind: The Secret of Human Thought Revealed [Hardcover]

[Ray Kurzweil](#) (Author)

★★★★☆ (110 customer reviews)

Buy New

\$19.26 & **FREE Shipping** on orders over \$25. [Details](#)

In Stock.

Ships from and sold by Amazon.com. Gift-wrap available.

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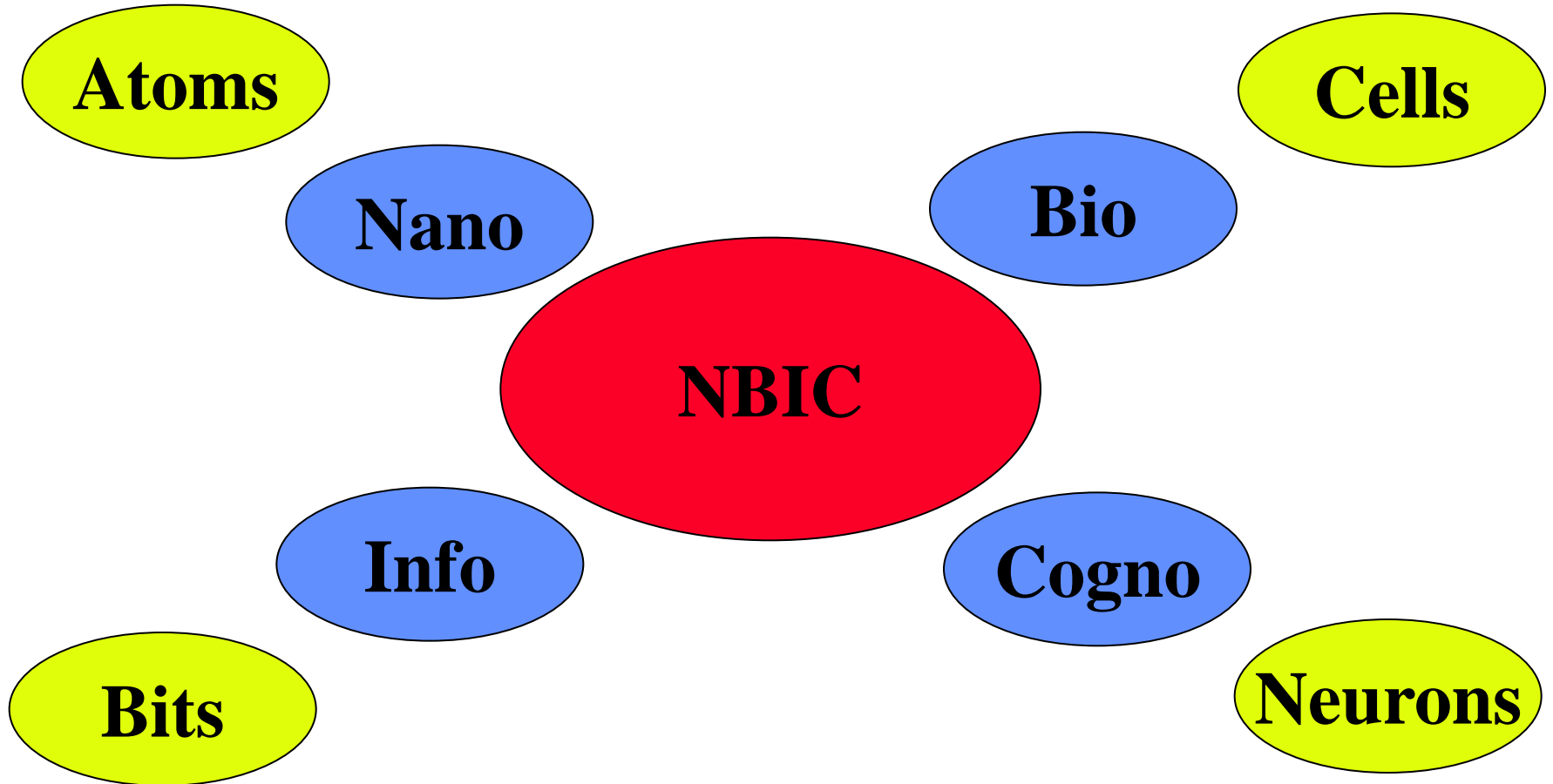
Cryonics: If needed (Plan B)



NBIC (Nano-Bio-Info-Cogno) National Science Foundation Department of Commerce



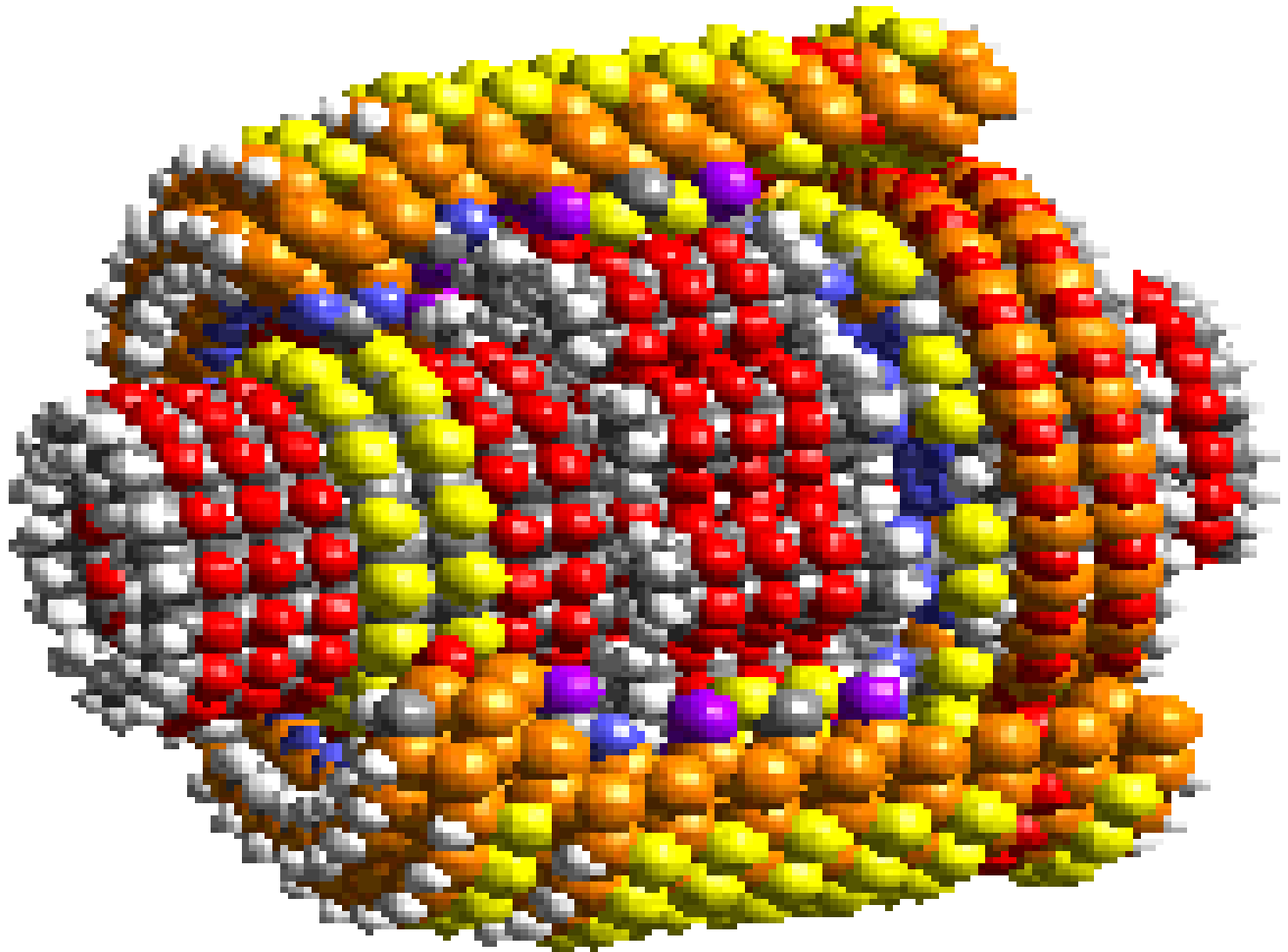
Technological Convergence **NBIC**



1. Nano (NBIC)

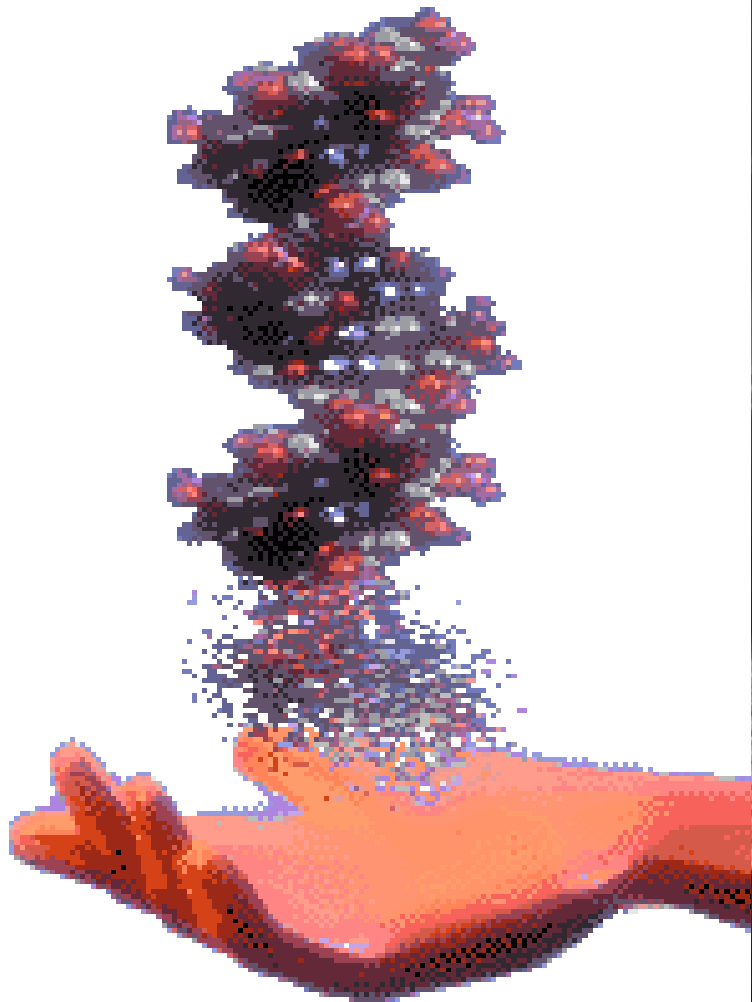


Nanotechnology: www.nano.gov





2. Bio (NBIC)



The **glo**-fish: transgenic fish (Taiwan)



Glowing Plants: Natural Lighting with no Electricity

by Antony Evans

Home Updates 12 Backers 5,759 Comments 443

San Francisco, CA Technology



5,759

backers

\$324,686

pledged of \$65,000 goal

25

days to go

Back This Project

\$1 minimum pledge

Dolly: the clone



Singapore: **Biopolis**





De-extinction



Synthetic biology is born

- **Variola virus (smallpox)**

Genes: 197

Base pairs: 185,000

- **Mycoplasma genitalium (bacteria)**

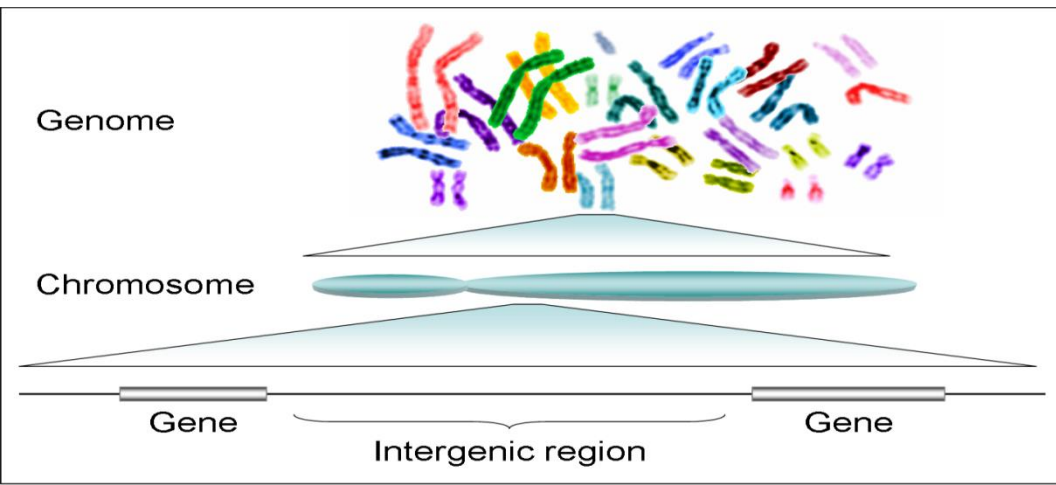
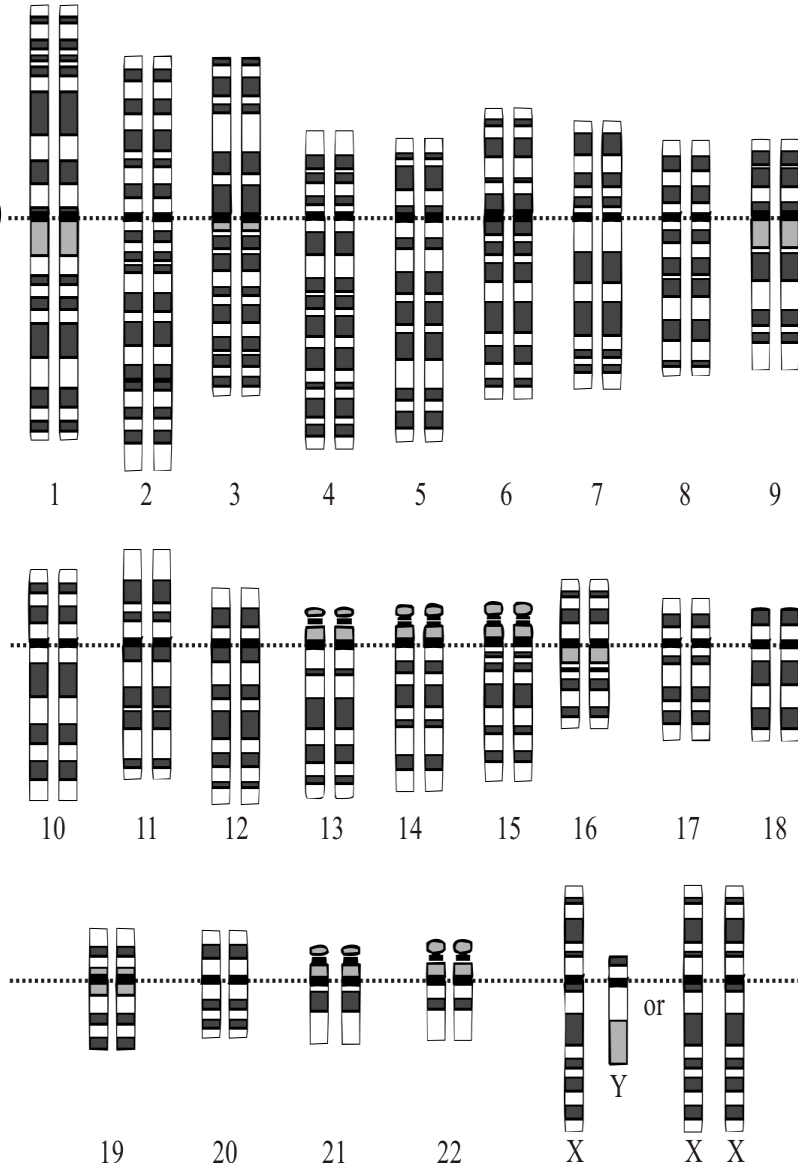
Genes: 485

Base pairs: 580,000

- **Homo sapiens sapiens**

Genes: ~25,000

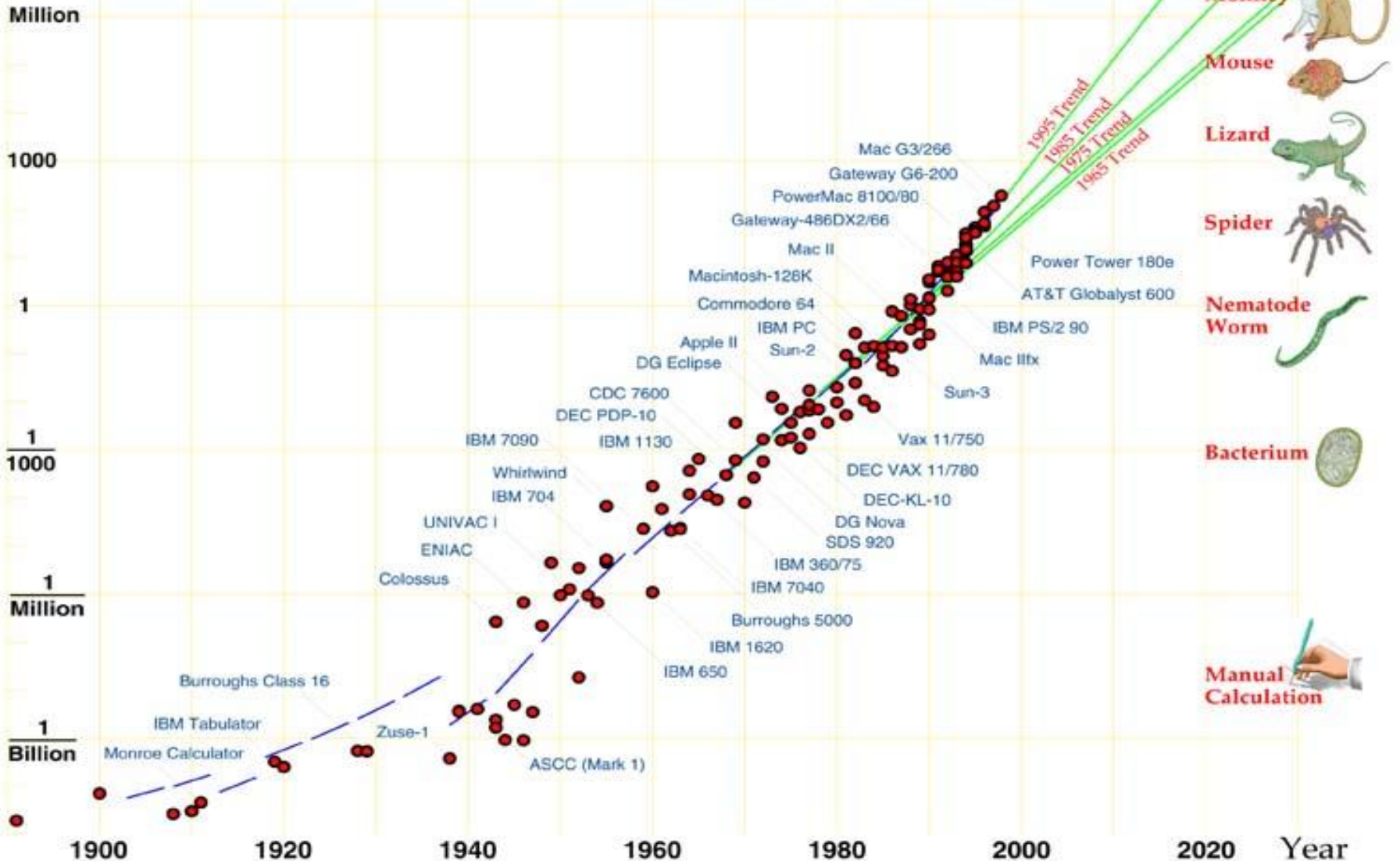
Base pairs: ~3,000,000,000



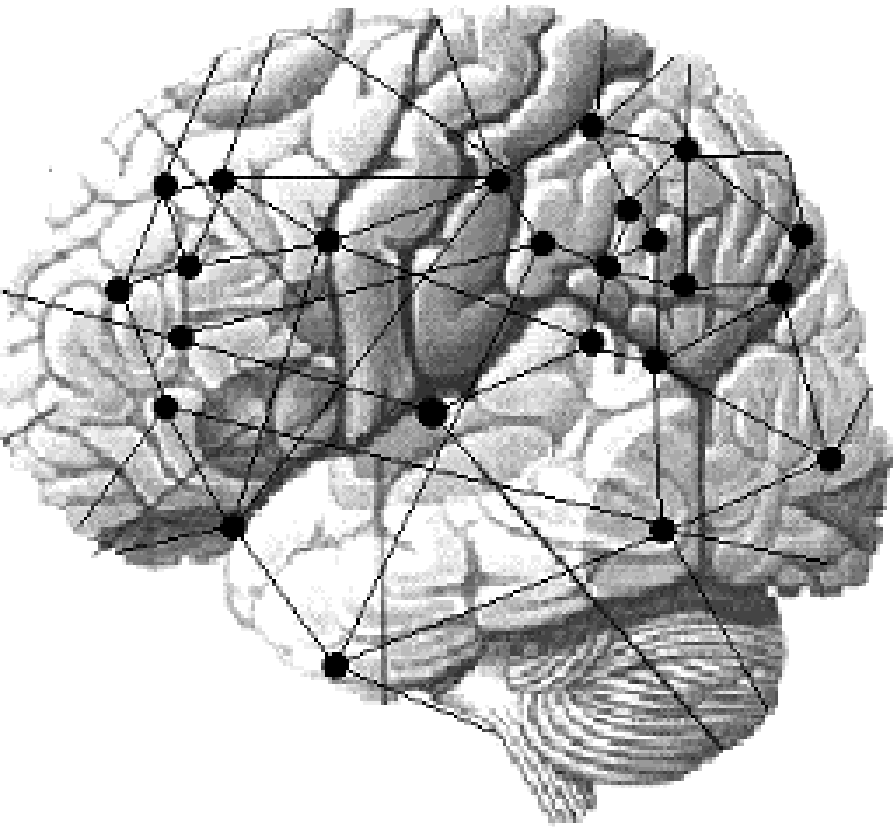
3. Info (NBIC)

Evolution of Computer Power/Cost

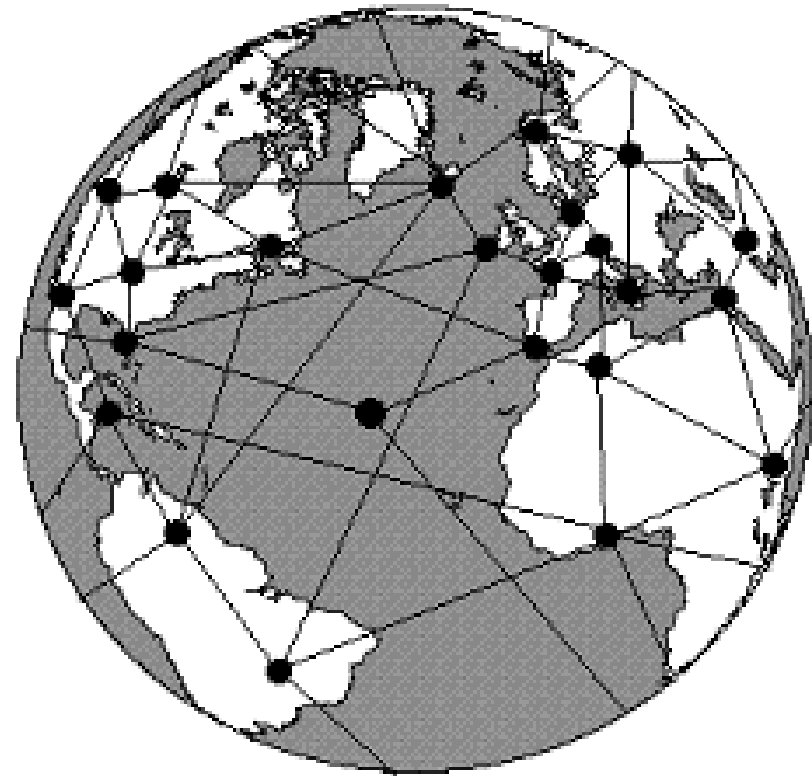
MIPS per \$1000 (1998 Dollars)



Global brain?



Human Brain



Global Network

?





Google Glass





IMPACT FOR WORLD  MAKE A DIFFERENCE NOW 

Google boss: Entire world will be online by 2020



By Doug Gross, CNN

April 15, 2013 – Updated 1720 GMT (0120 HKT) | Filed under: [Web](#)

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MANAN UATZVANI/WFP/GETTY IMAGES

Zuckerberg Explains Facebook's Plan to Get Entire Planet Online


BY STEVEN LEVY 08.26.13 1:00 PM

 Follow @stevenlevy

 Share 878

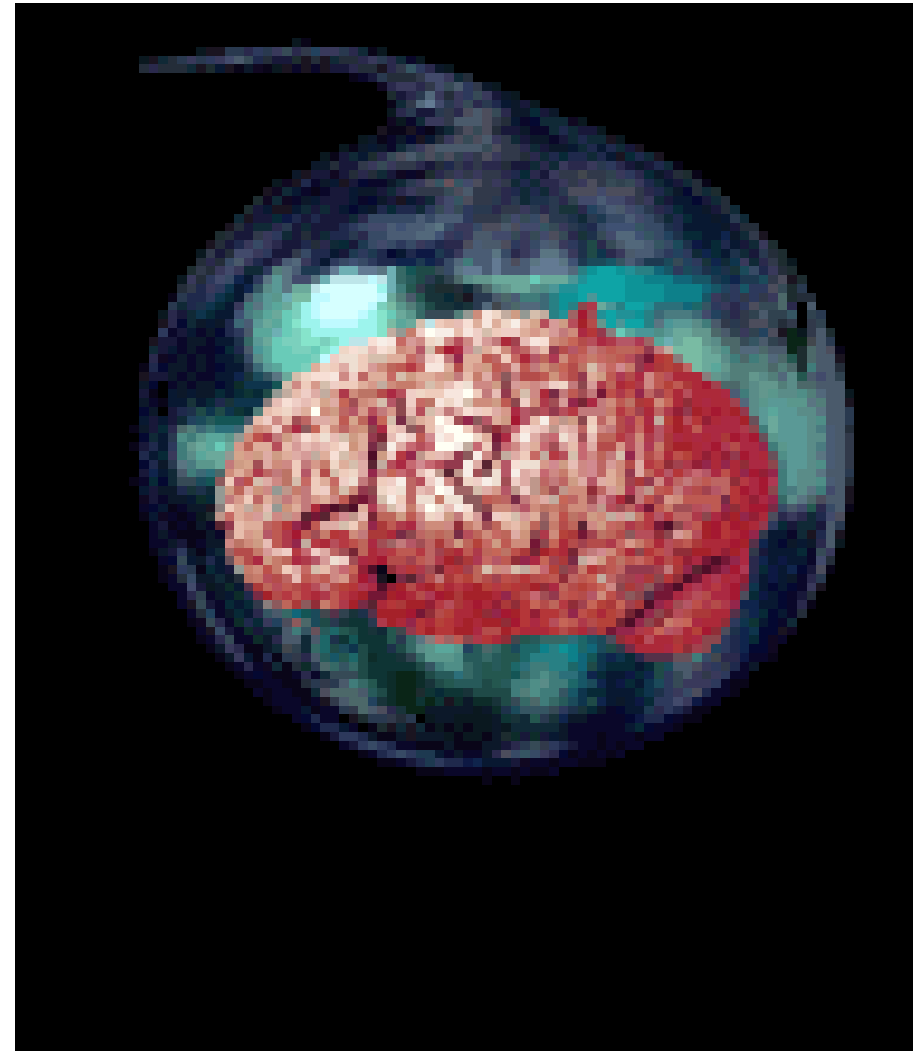
 Tweet 826

 +1 228

 Share 136



4. Cogno (NBIC)



Riken Brain Institute

www.brain.riken.go.jp



Riken Brain Institute

www.brain.riken.go.jp

1997



2003



2008



2013



2018

Understanding the Brain

Elucidation of brain functions

Protecting the Brain

Elimination of brain disorders

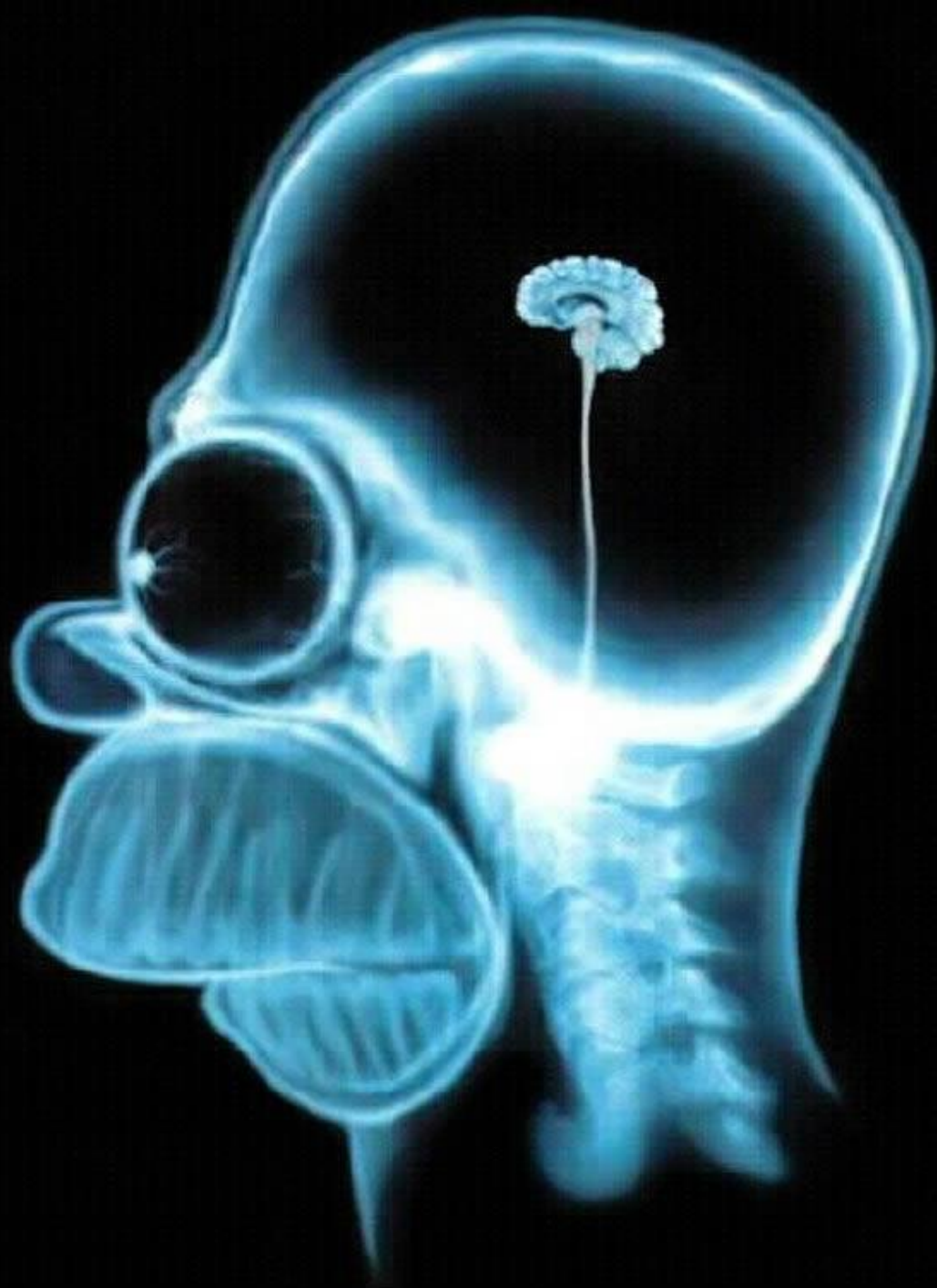
Creating the Brain

Development of brain-style computers

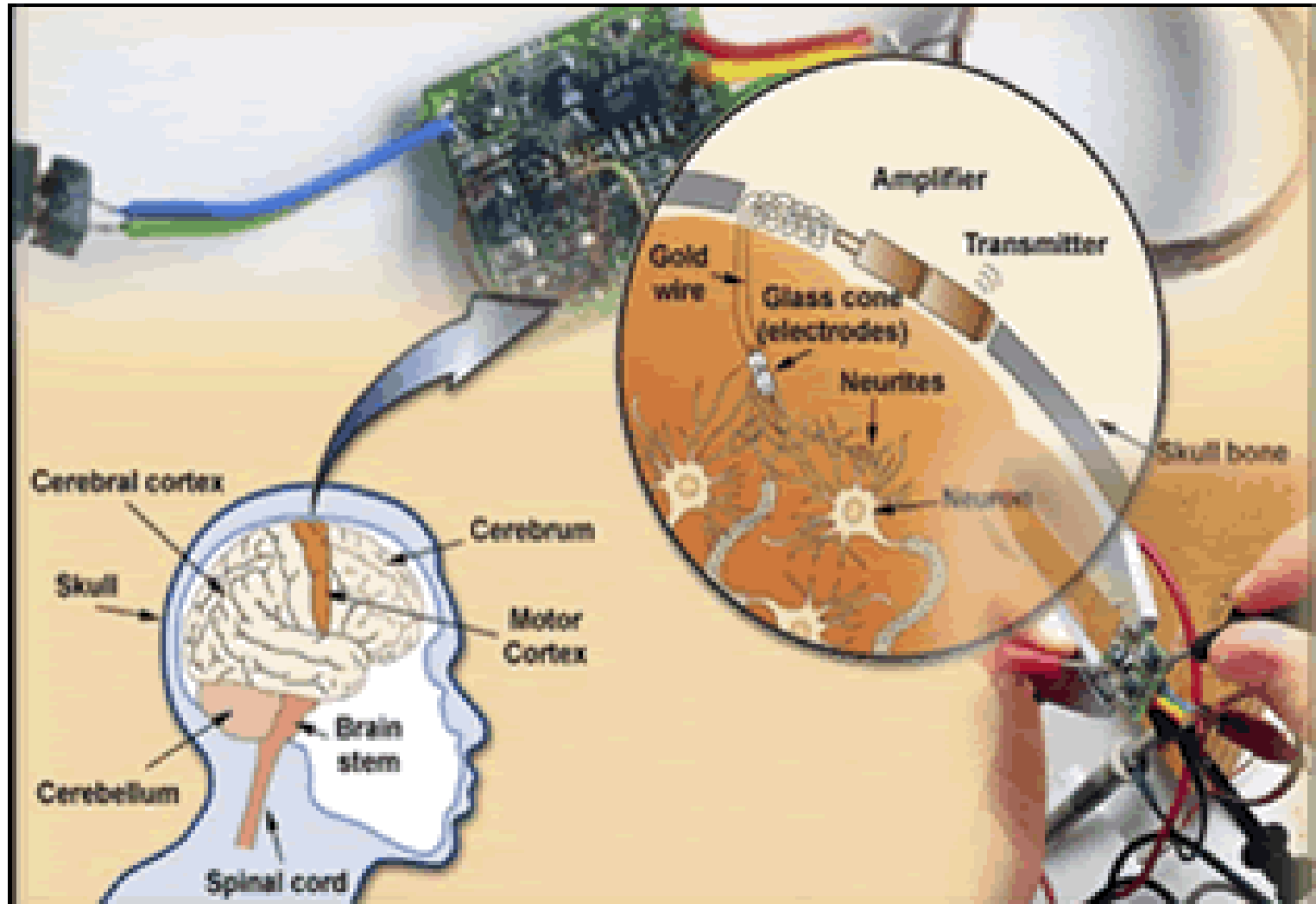
What is a **brain**?



- **1 brain**
- **10^{11} neurones**
- **10^{14} synapsis**
- **10^{17} computations
(per second)**
- **And the mind?**
- **And the spirit?**
- **And the soul?**



Internal brain implants: **Cyberkinetics Inc.**



images courtesy Georgia Tech

External brain implants



mindwave

Decades of Laboratory EEG
Technology Research
for under \$100



emotivo

you think, therefore, you can



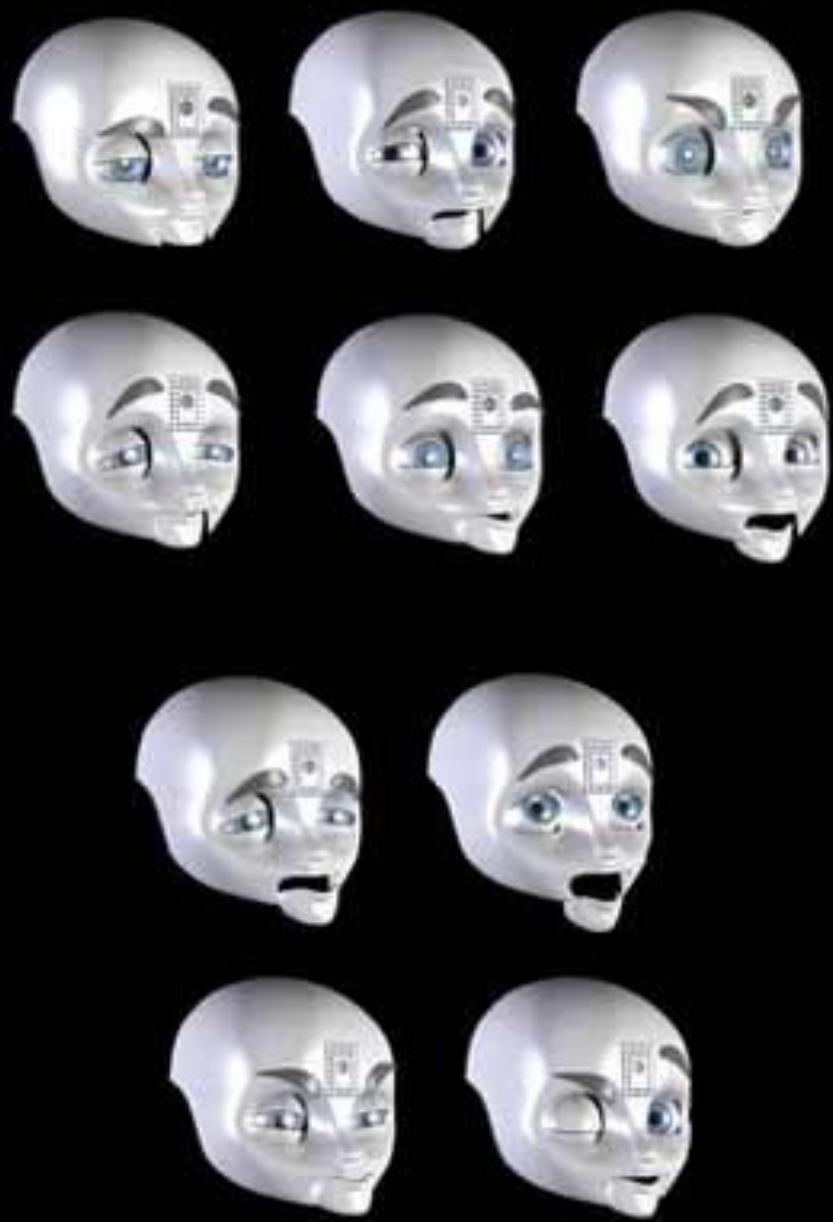
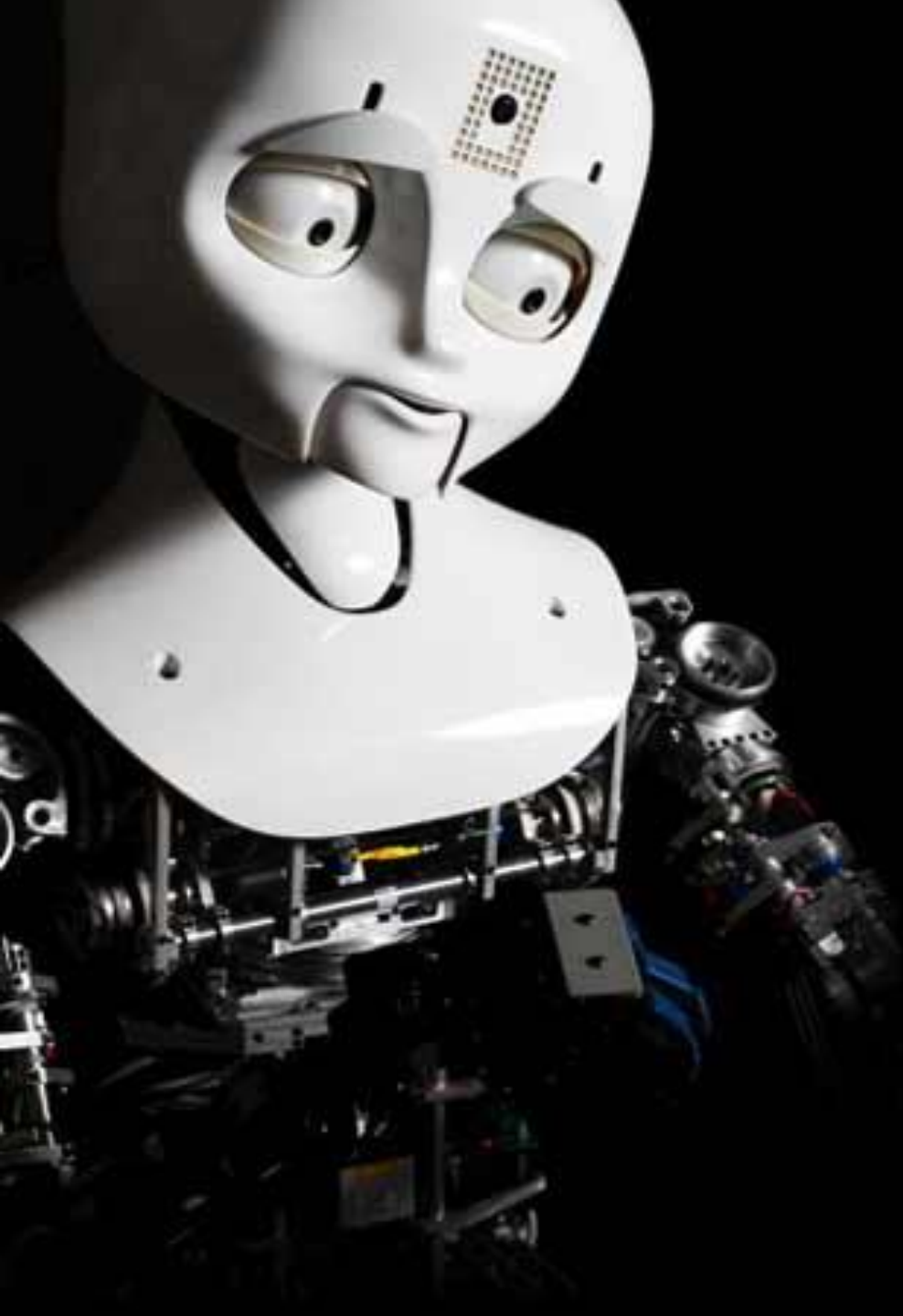
Asimo (Honda) evolution

ASIMO
The Honda Humanoid Robot ASIMO



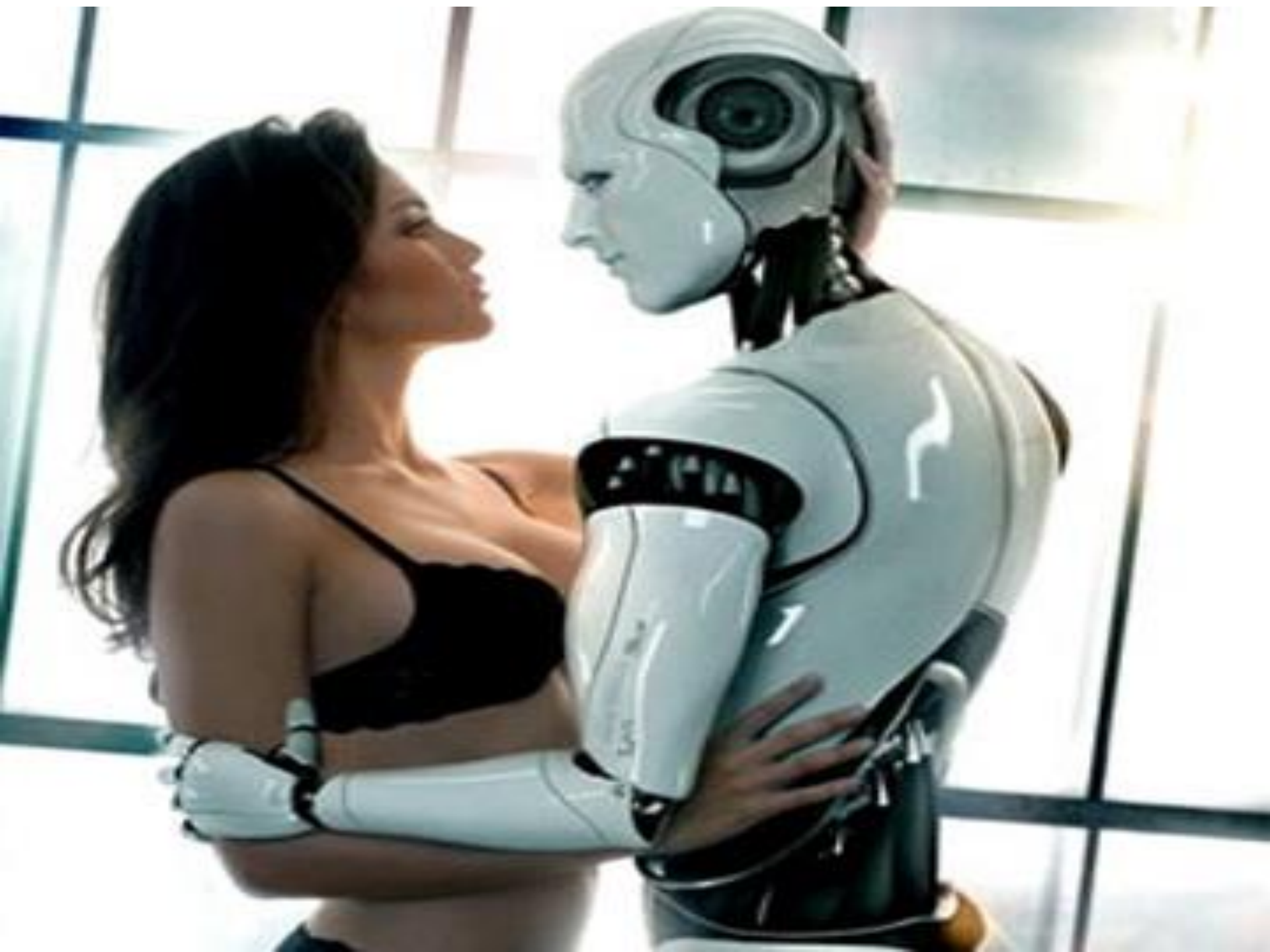
History
Robot Development Process



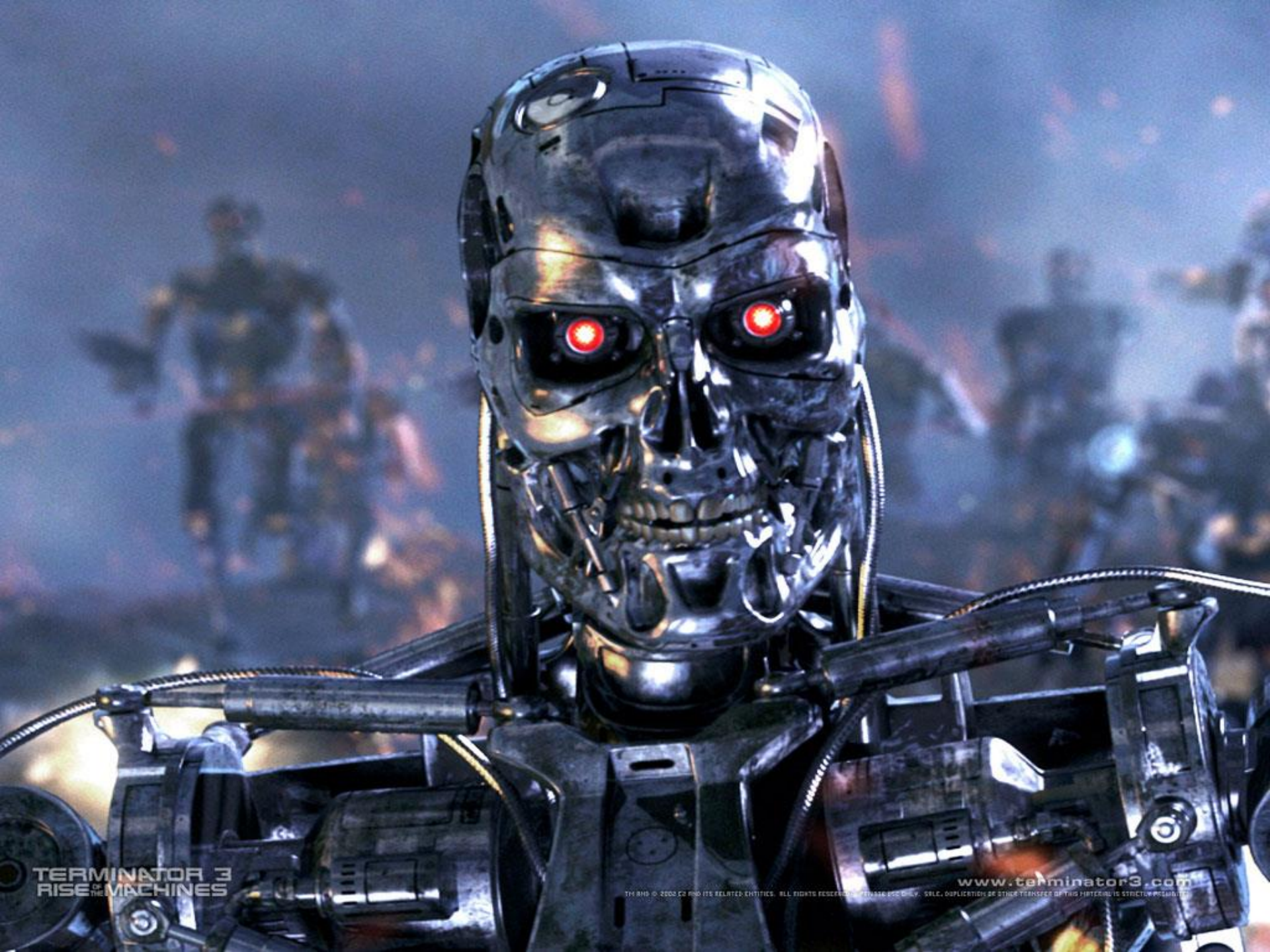




Valiant







TERMINATOR 3
RISE OF THE MACHINES

www.terminator3.com

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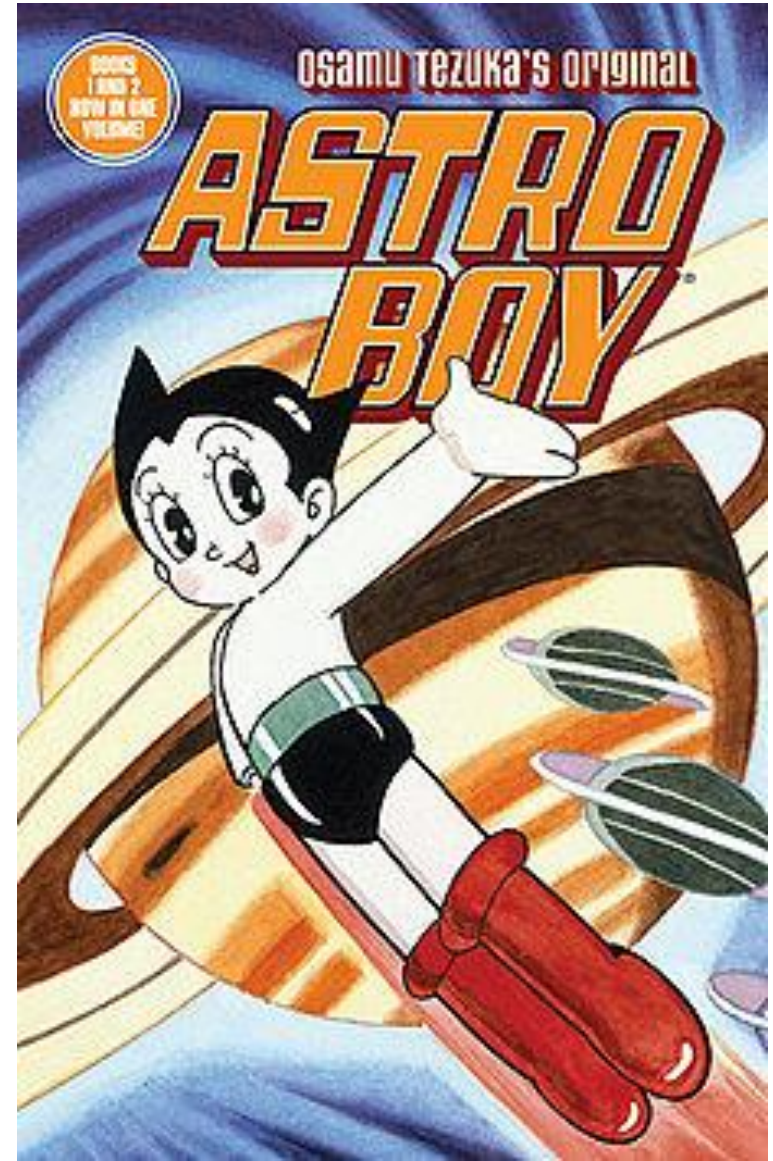
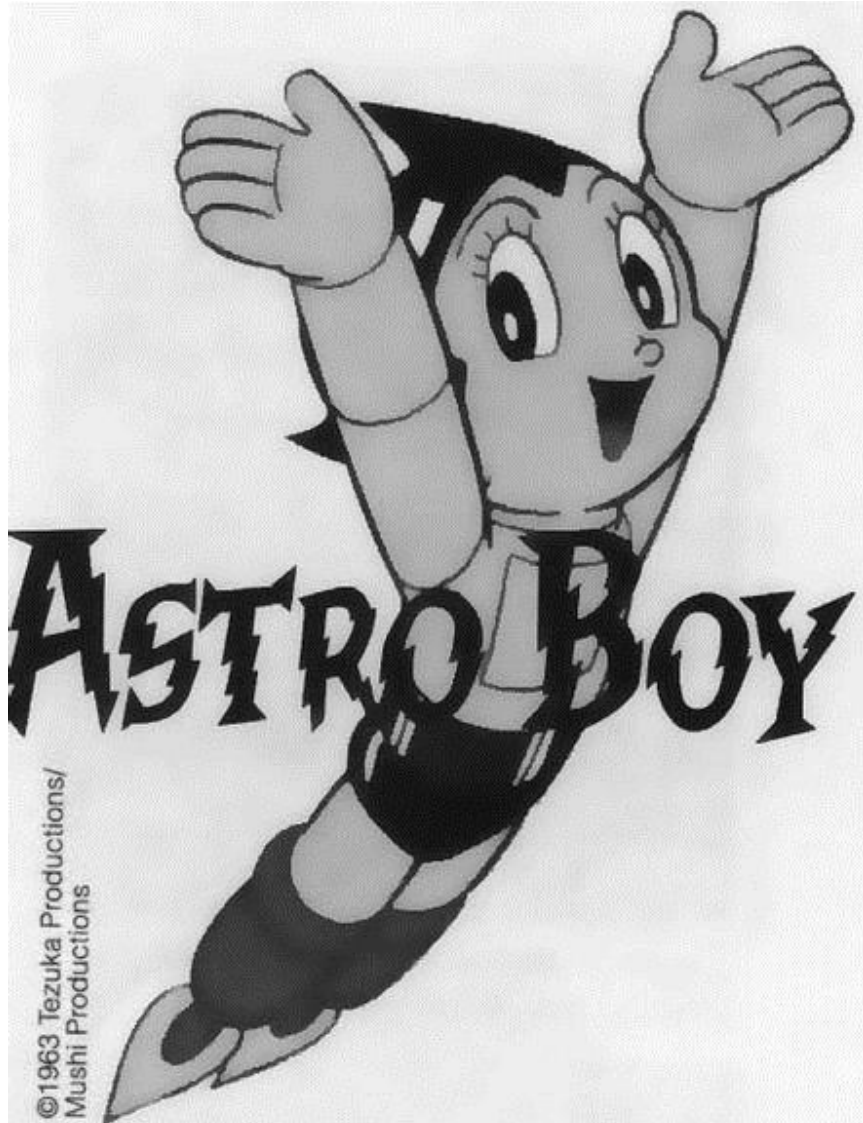
TERMINATOR 3
RISE OF THE MACHINES

THE WAR BEGINS JULY 2



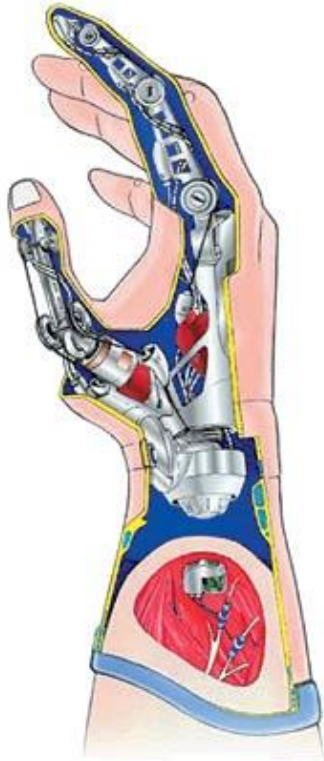


Robots are **good** in Japan and Korea



Humans **or** machines?

Humans **and** machines!



Oscar Pistorius: “Blade runner” in London 2012 Olympic Games

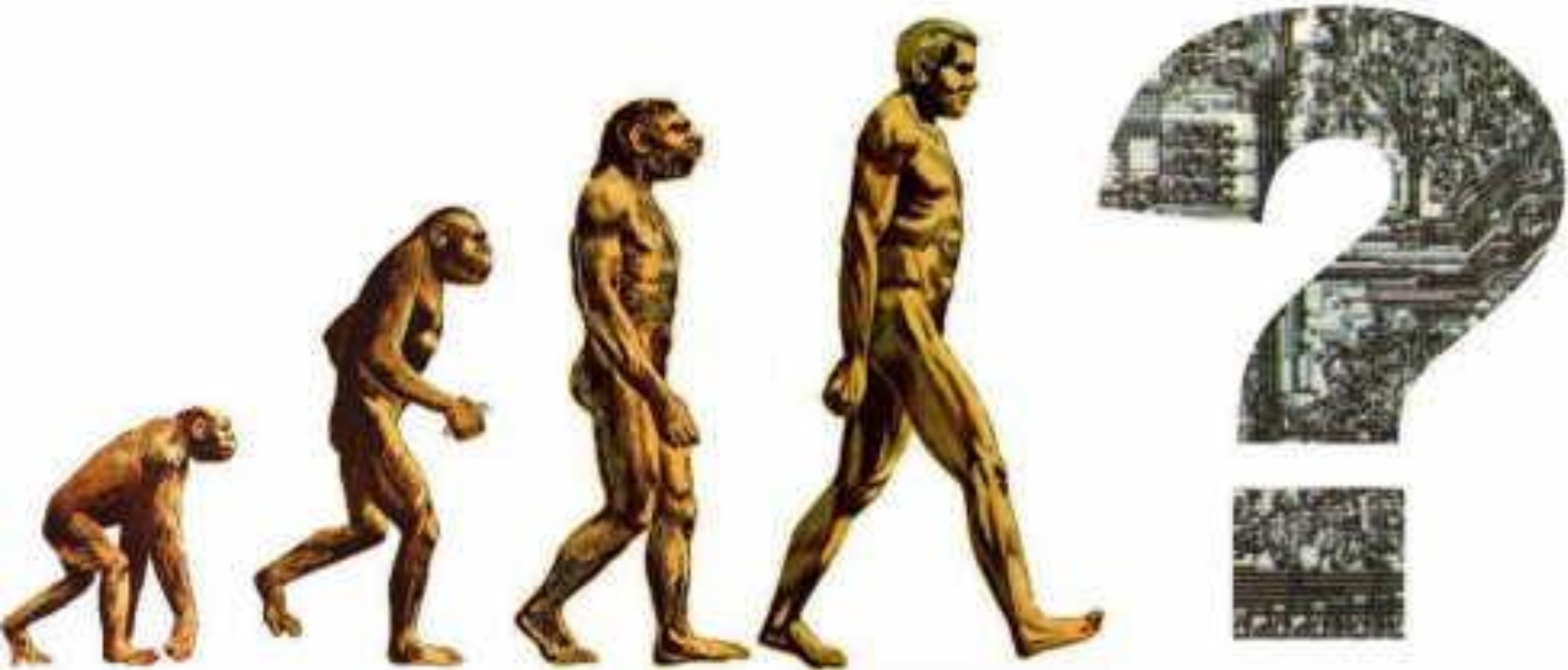


Copa del Mundo en Brasil: 2014



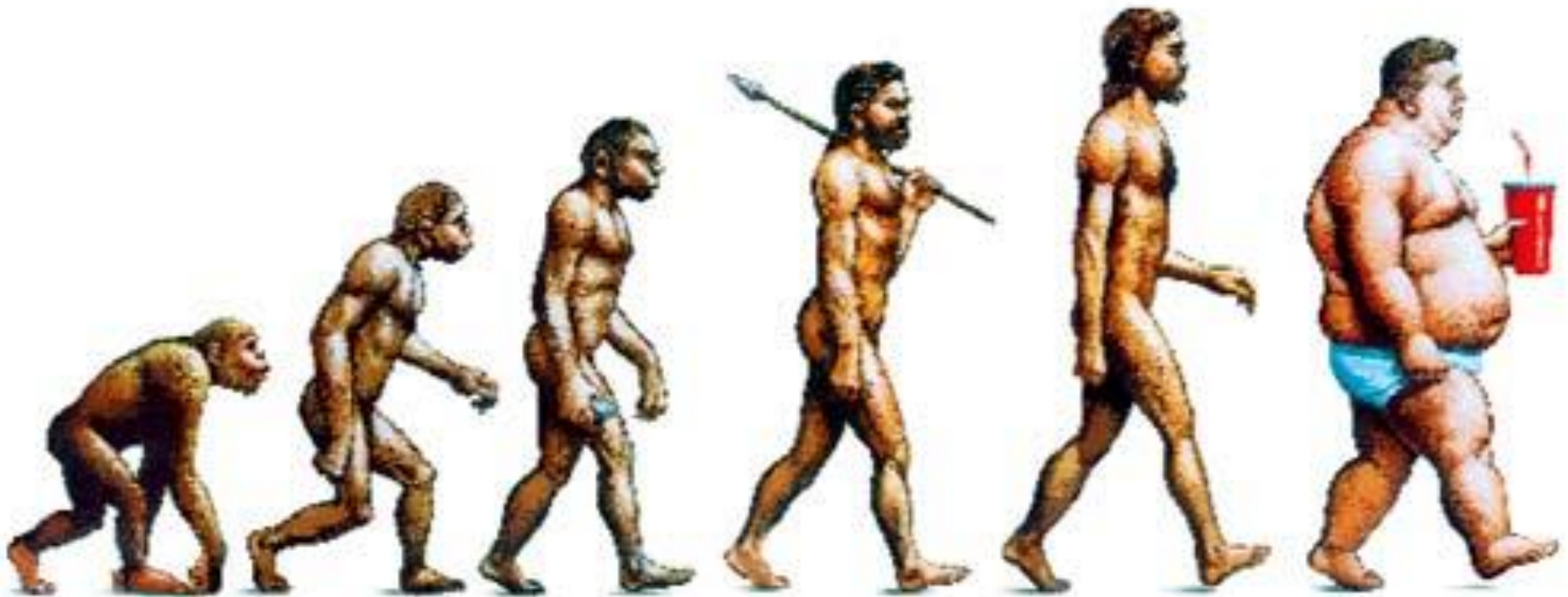
**Transhumanism is S&T for humans:
transcending human limitations**

www.TransHumanismo.org



Are humans **trans-monkeys?**

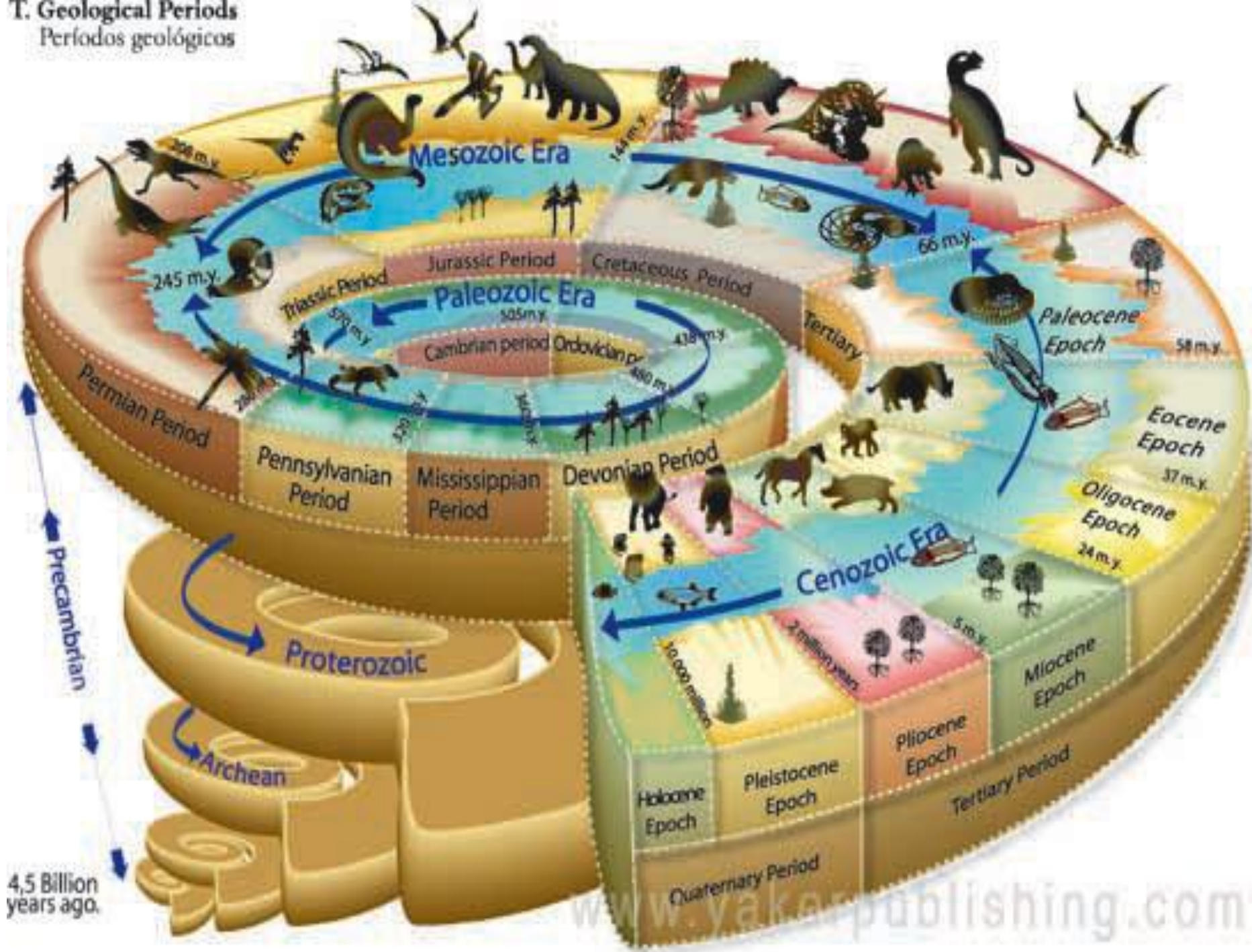
Transhumanism, yes... but **carefully**



Homo sapiens sapiens

I. Geological Periods

Períodos geológicos





Superman?

**Christopher
Reeve
(paraplegic)**



Stephen Hawking



Michael J. Fox: **Back to the Future**



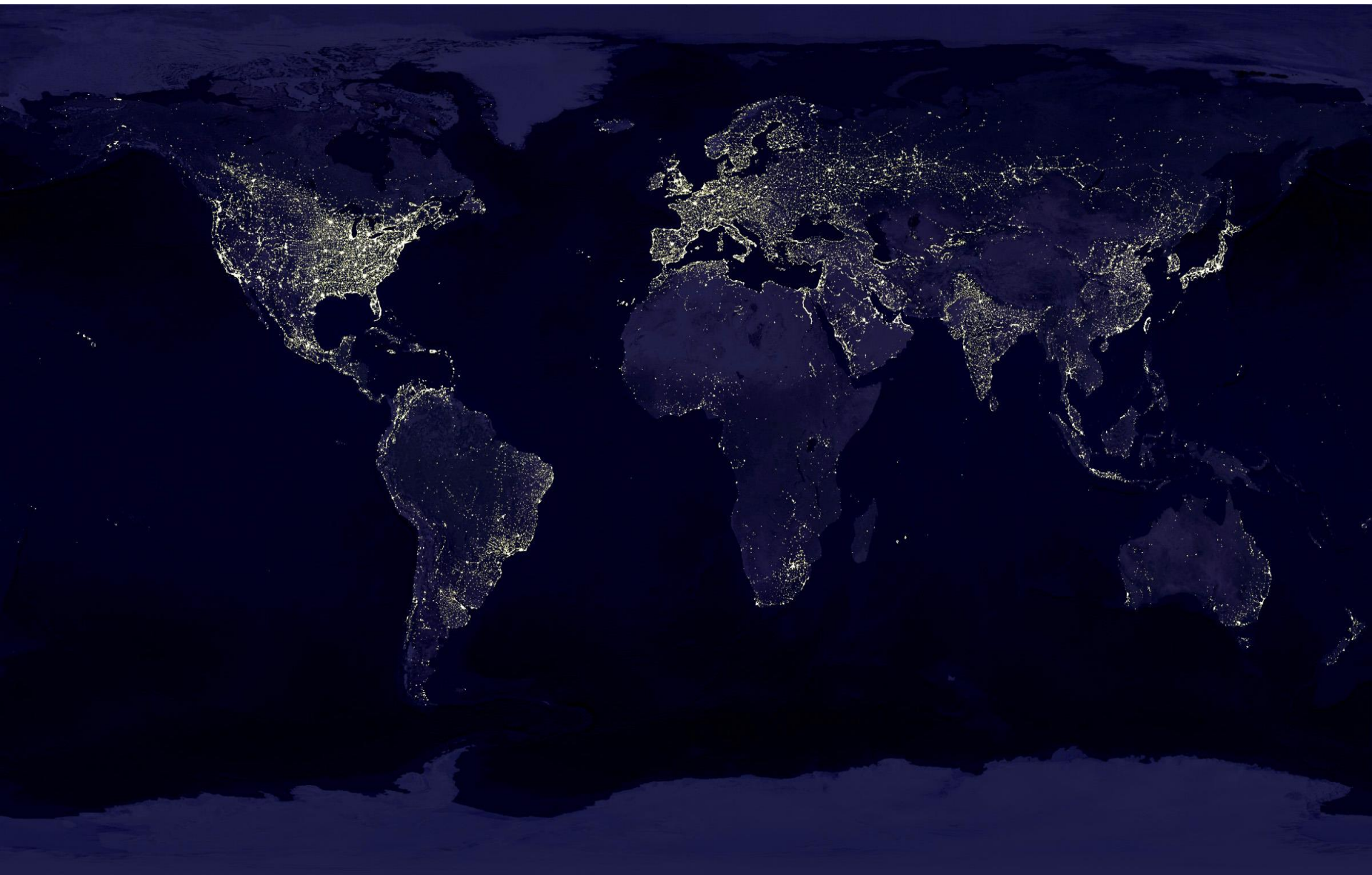
Ronald Reagan: **Alzheimer's**

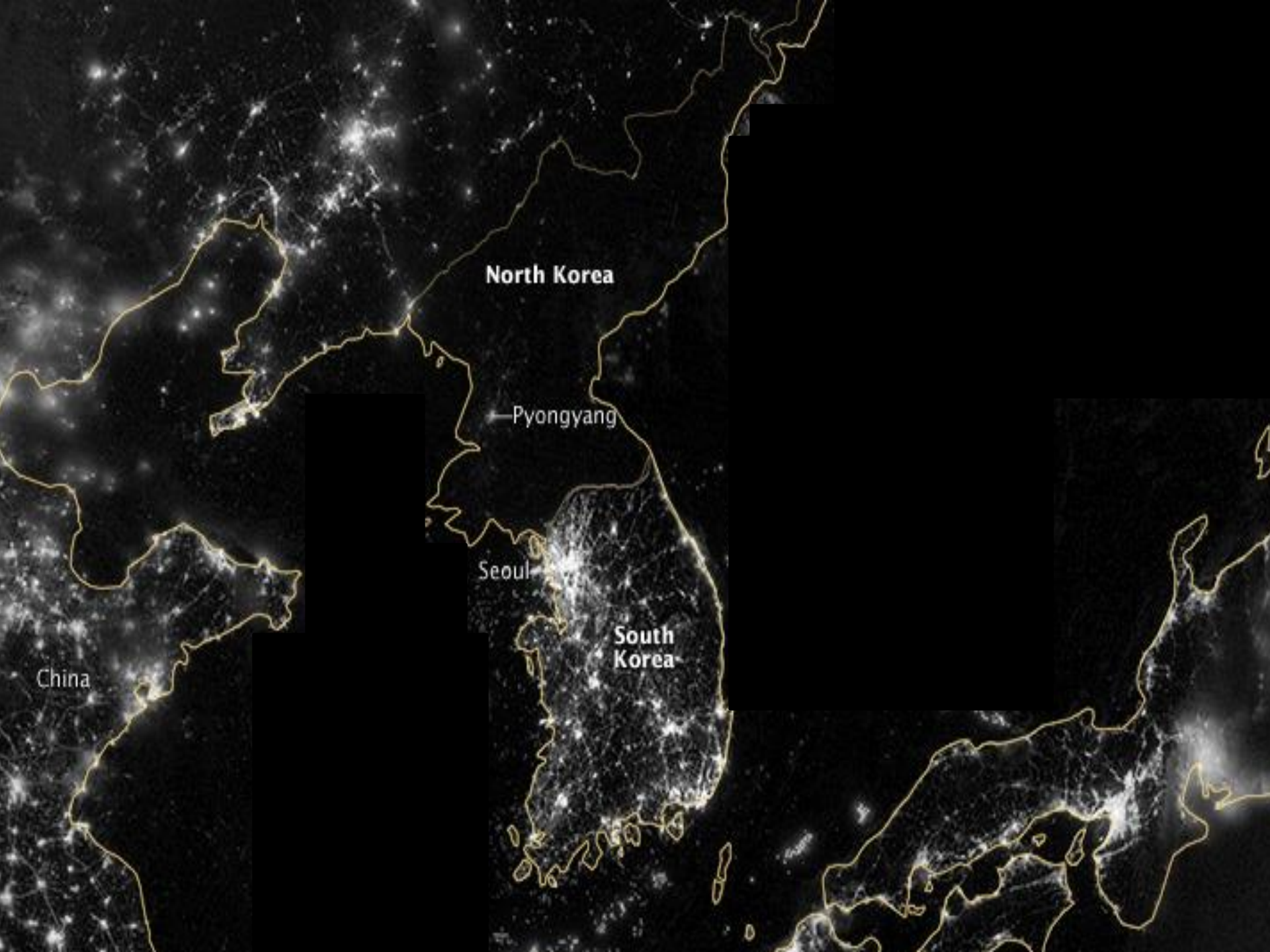


(CNN)



Light up the world





North Korea

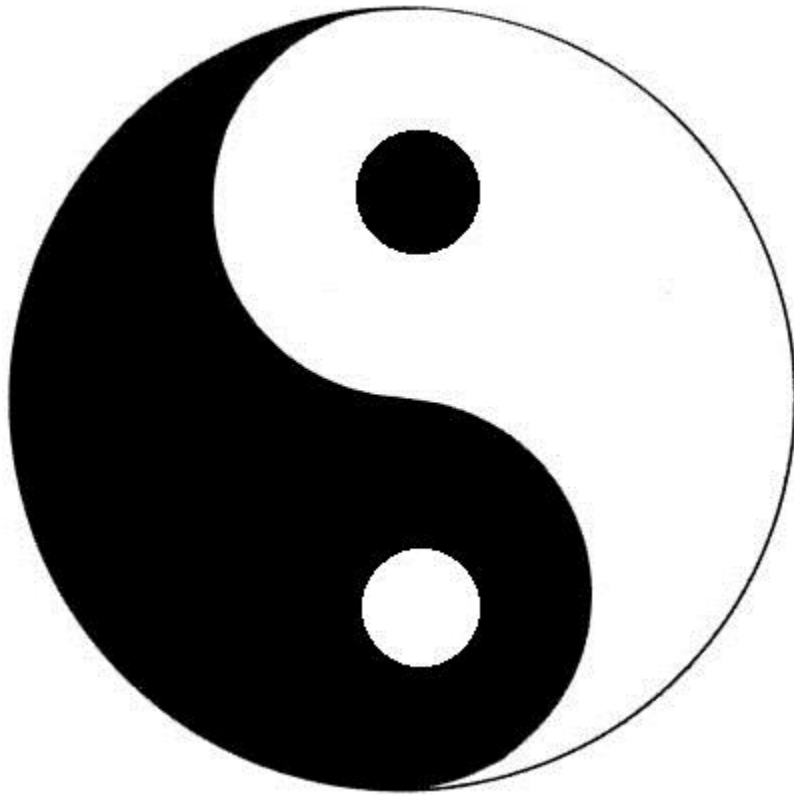
—Pyongyang

Seoul

South Korea

China

Yin-yang 阴阳 (and more yin-yang)



The world is one



Guru Cordeiro meditating in India (Hinduism) and in Japan (Buddhism)



**Space:
the final
frontier?**



Mars 2023: Inhabitants Wanted

Mars One will establish a permanent human settlement on Mars. We invite you to participate by sharing our vision with your friends, and, perhaps, by becoming the next Mars astronaut yourself.

[APPLY NOW!](#)



▶ Watch our introduction film

THESE PEOPLE APPLIED TO GO TO MARS

SORT BY [NEWEST](#) | [RATING](#) | [POPULARITY](#) | [VIEWS](#) | [RANDOM](#)



Daniel

Country: [United States](#) | Language: [English](#) | Age: 22

3,659 3,386 (3.7)

FILTER APPLICATIONS

SEX

AGE (FROM / TO)
 /

COUNTRY

LANGUAGE

危 櫻

后

木器

木器

色

危 櫻

Ray Kurzweil

Cómo crear una mente

El secreto del pensamiento humano



2029: año en el que la inteligencia artificial no podrá distinguirse de la humana. Este es el horizonte hacia el que mira *Cómo crear una mente*.

Siguiendo la estela de *La Singularidad está cerca*, su libro anterior, el autor recorre la curva del crecimiento exponencial de la tecnología hasta el momento en el que la inteligencia de los ordenadores alcanza a la

del hombre. ¿Qué pasará entonces? Si la creación de máquinas cada vez más potentes es una capacidad humana, entonces las máquinas también heredarán esta capacidad, pero con todas las ventajas que conllevan los sustratos no biológicos. Esto dará lugar a posteriores generaciones de máquinas cada vez más potentes que acompañarán al hombre hacia la singularidad tecnológica.

Ray Kurzweil explica el itinerario que el hombre está siguiendo para lograr este objetivo, así como la manera precisa en la que está llevando a cabo esta transformación. Según el autor, el futuro inteligente de las máquinas converge con el de los humanos, ya que seremos capaces de incorporar dicha inteligencia a nuestros propios cuerpos.

¿Cómo será el mundo en este escenario? Descúbralo con la lectura de este apasionante libro.

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