

Pourquoi l'éthique du numérique ?

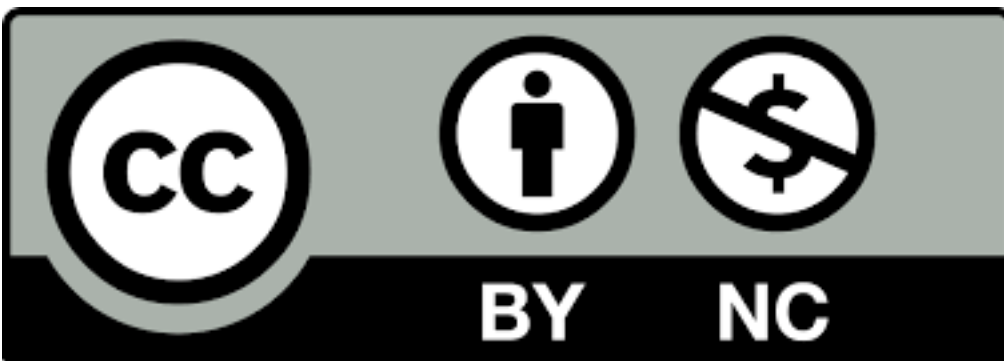
Why digital ethics ?

Claude Kirchner

Inria

CCNE pour les sciences de la vie et de la santé
comité national pilote d'éthique du numérique

CERNA



☀ Information, human and digital

Ethics and digital

Brief overview in 3 key domains

How to organise ethics deliberations

Conclusion

☀ **Information, human and digital**

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We are in a revolution much
deeper than we can
imagine today

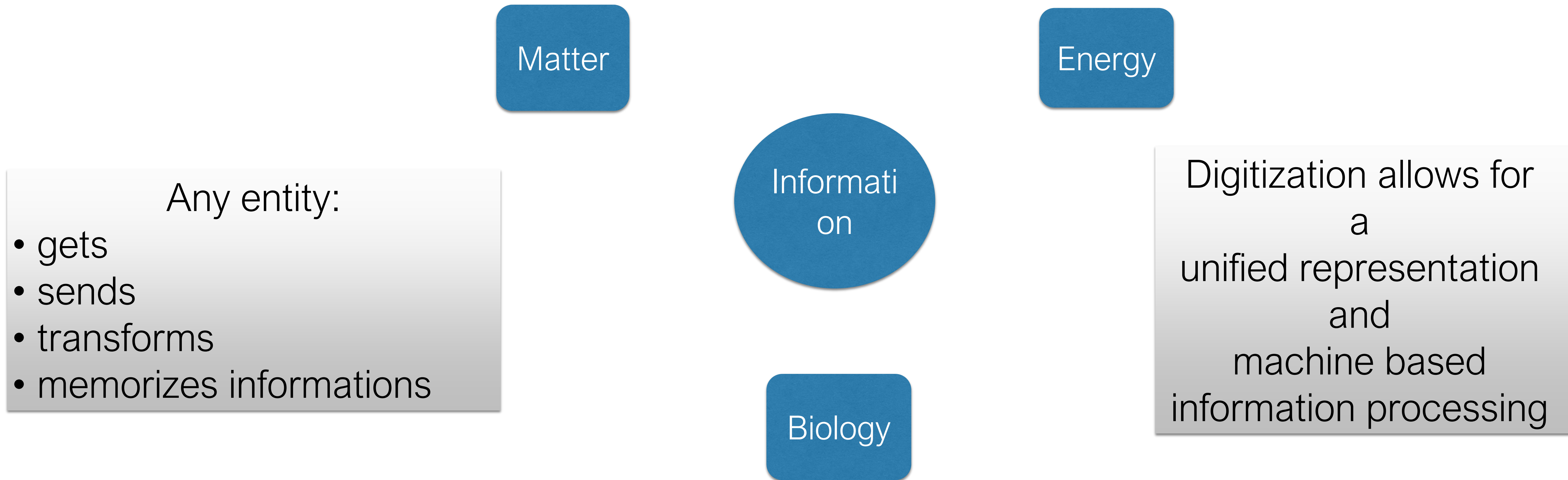


A formidable opportunity

ALIX, LOOK A LITTLE TO WHAT YOU MAKE ME DO.
FOR YOU, I HACKED THE SERVICE OF
ADVERTISEMENT PANELS, COME BACK
I LOVE YOU,
GREG

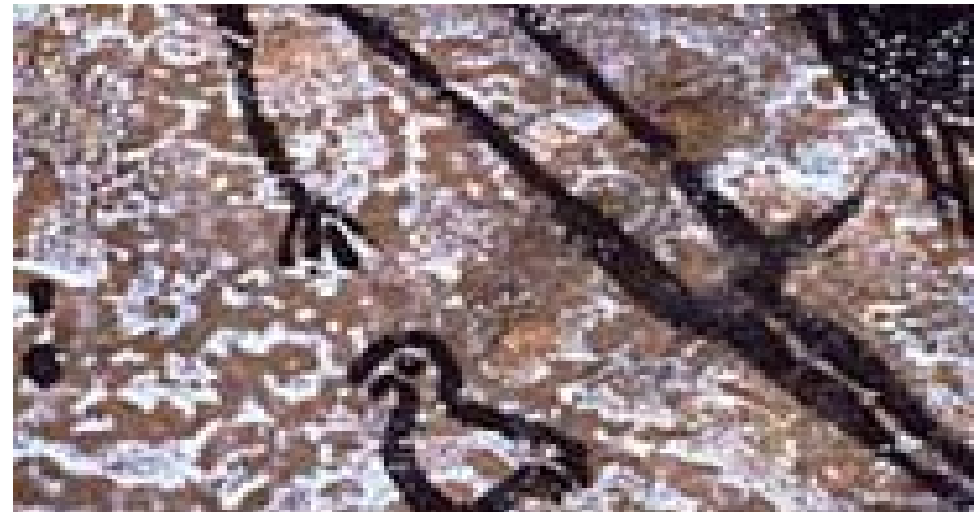


Information, a fundamental concept



N. Wiener (1948): *"Information is information, not matter or energy. No materialism which does not admit this can survive at the present day."* » Cybernetics: or Control and Communication in the Animal and the

Information representations and human revolutions



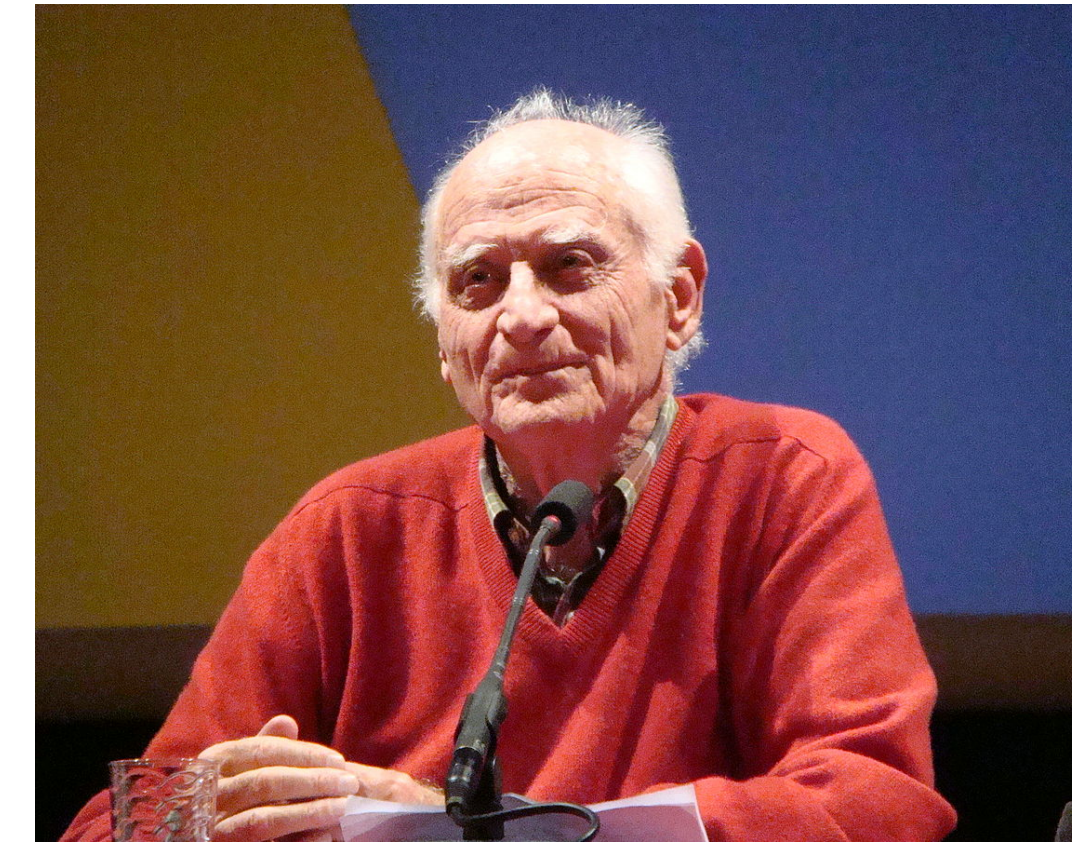
Language, drawing



Writing



Printing



Michel Serres



Digital

Universality of the digital, for instance in health

Signal processing, machine learning and health

Telemedicine

Digitisation of surgery rooms

Computer science for health

Institutional management

Diagnostic assistance

Genomics

Medical education

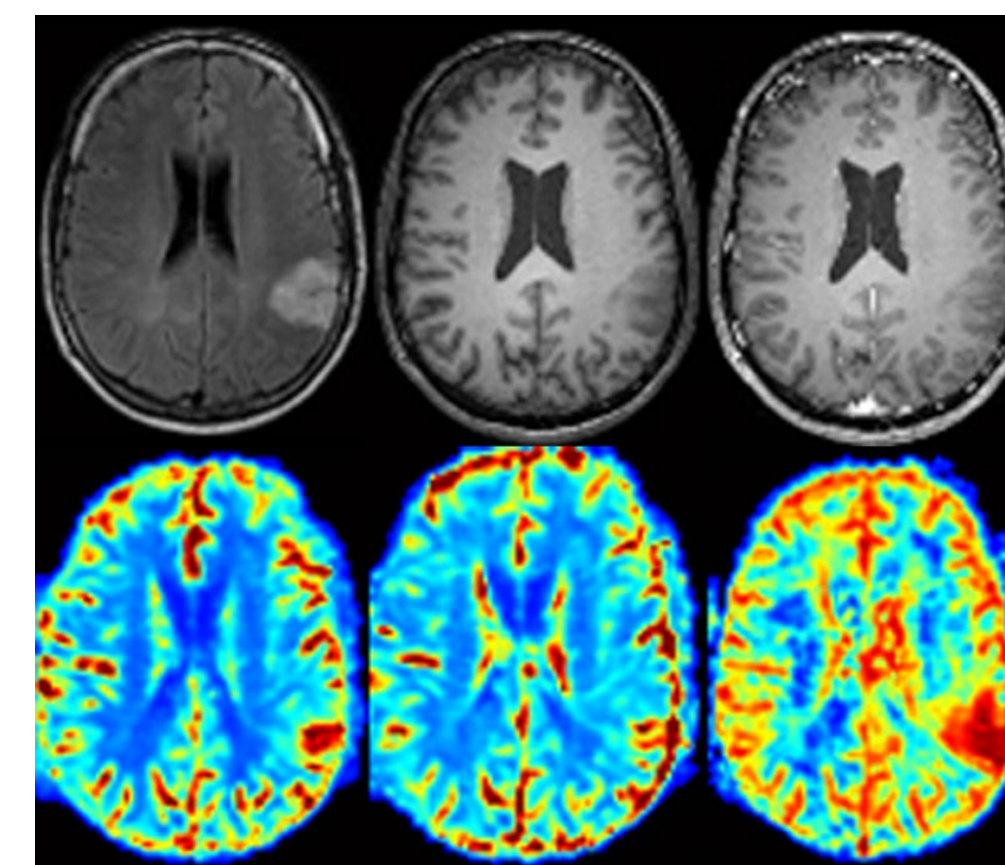
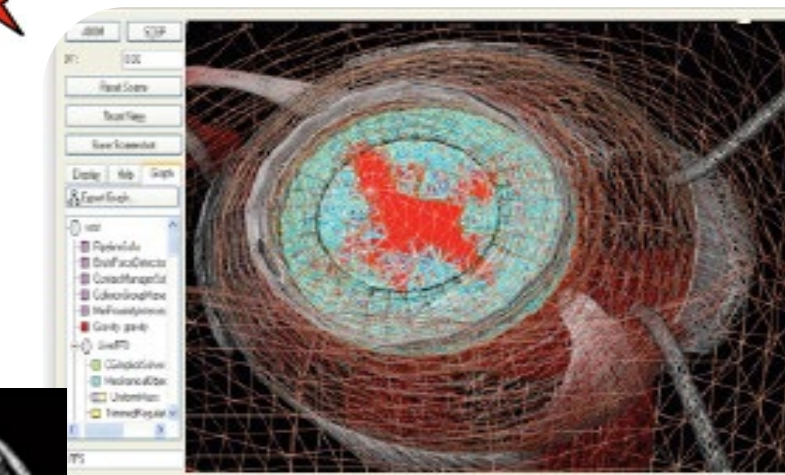
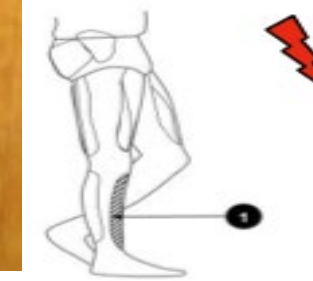
The empowerment of people

Clinical research

Public health research

Detection and control of epidemics

...



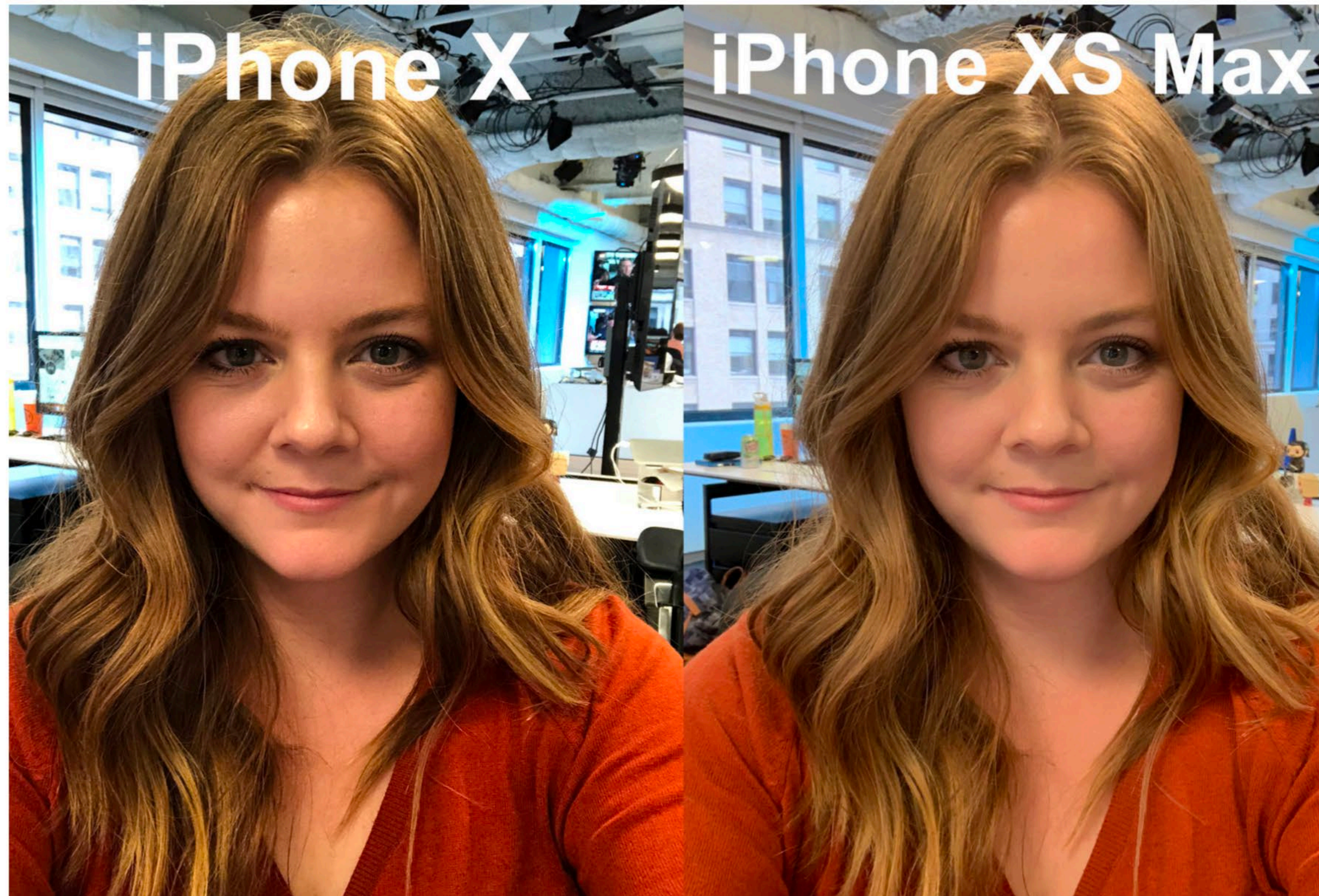
Information processing is not new...



After the fall of Yezhov

(Sophisticated) information processing for everyone

<https://www.businessinsider.com/beautygate-iphone-xs-camera-appears-to-apply-beauty-mode-to-selfies-2018-9> <https://www.imore.com/beautygate>



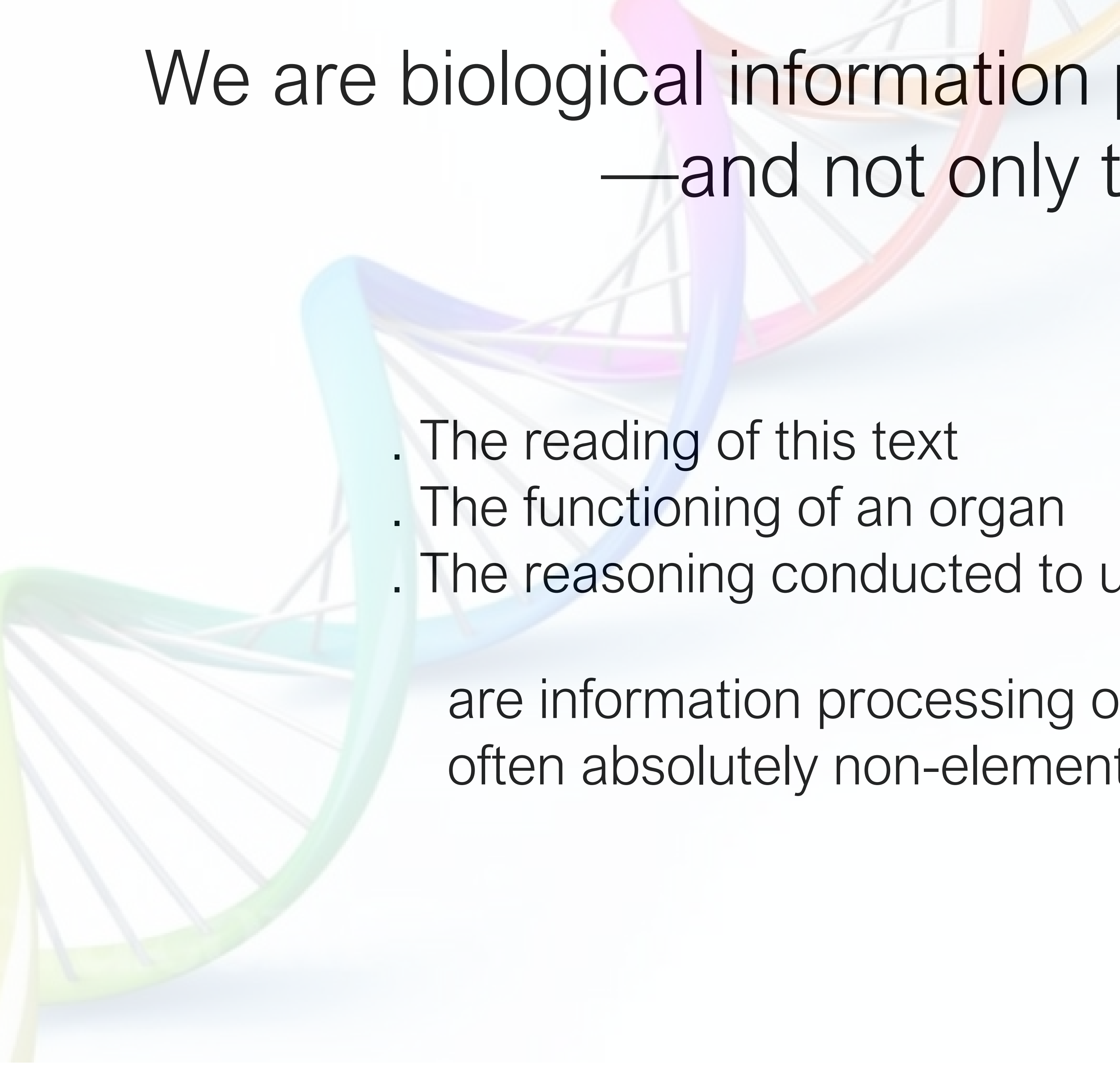
What are the values embedded in the algorithms ?

Who decide ?

© In Ethics and Computational Photography, Fredo Durand, MIT EECS & CSAIL

DIGITAL SCIENCES AND TECHNOLOGIES

Why to they have such an impact on
human and society ?



We are biological information processing systems —and not only that—

- . The reading of this text
- . The functioning of an organ
- . The reasoning conducted to understand a situation

are information processing operations,
often absolutely non-elementary

These two types of information processing systems, the Biologic and the Digital

- ◆ Complement each other
 - ◆ Interact
 - ◆ Collaborate
 - ◆ Combine
- with profound consequences
for and on the human being



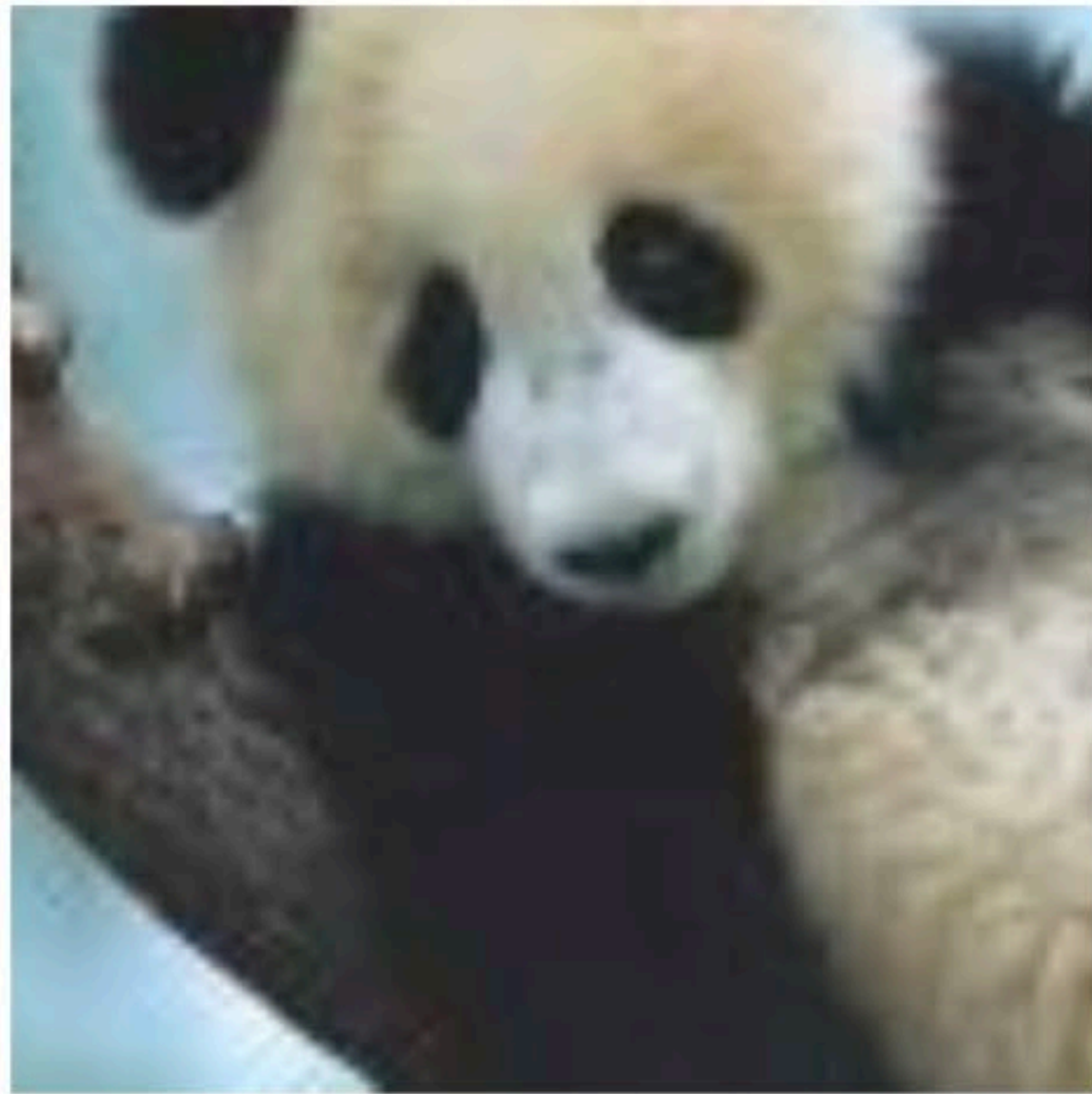
The cyber-civilisation

- Based on a deep synergy between biological (eg human) and digital information processing systems
- Based on mastery and confidence in information processing systems, considered globally
- Relies on non-trivial qualities of digital information systems like:
 - . cybersecurity
 - . non-maleficence
 - . confidence

The bio and the digital Information Processing Systems cross-fertilise

- For the best,
- but...
- Not only!

Hacking machine learning



x

“panda”

57.7% confidence

+ .007 ×

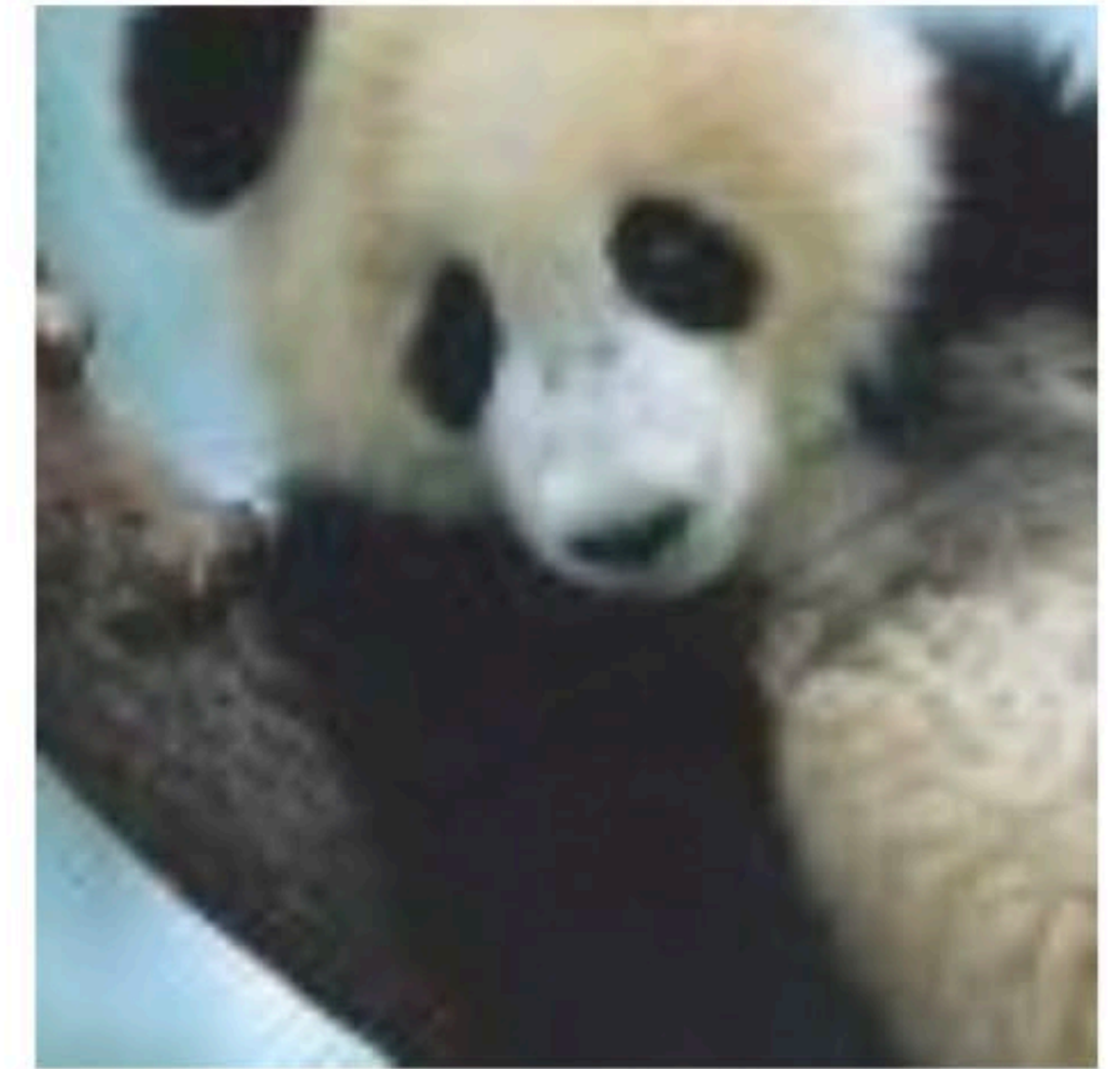


$\text{sign}(\nabla_x J(\theta, x, y))$

“nematode”

8.2% confidence

=



$x +$

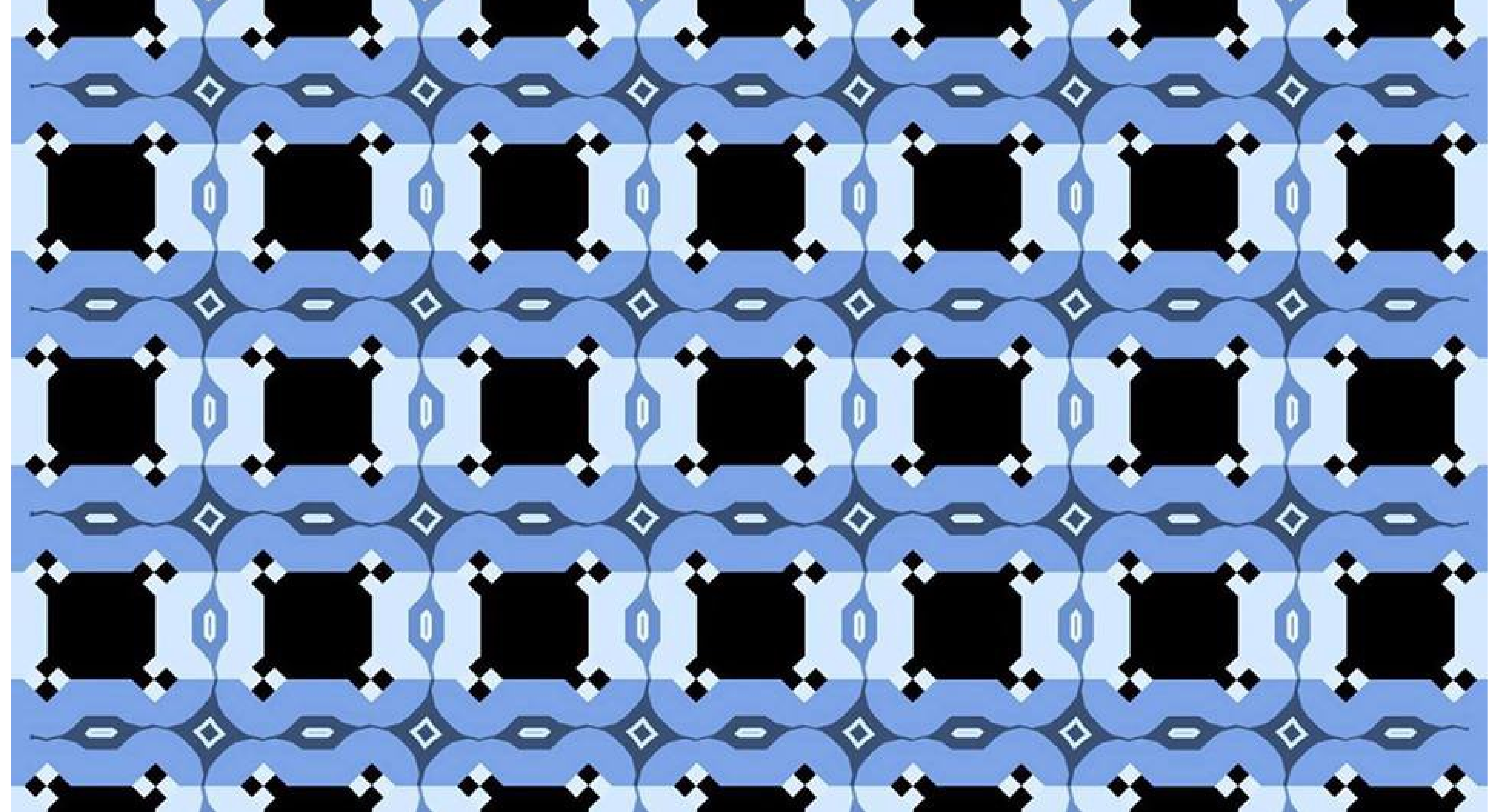
$\epsilon \text{sign}(\nabla_x J(\theta, x, y))$

“gibbon”

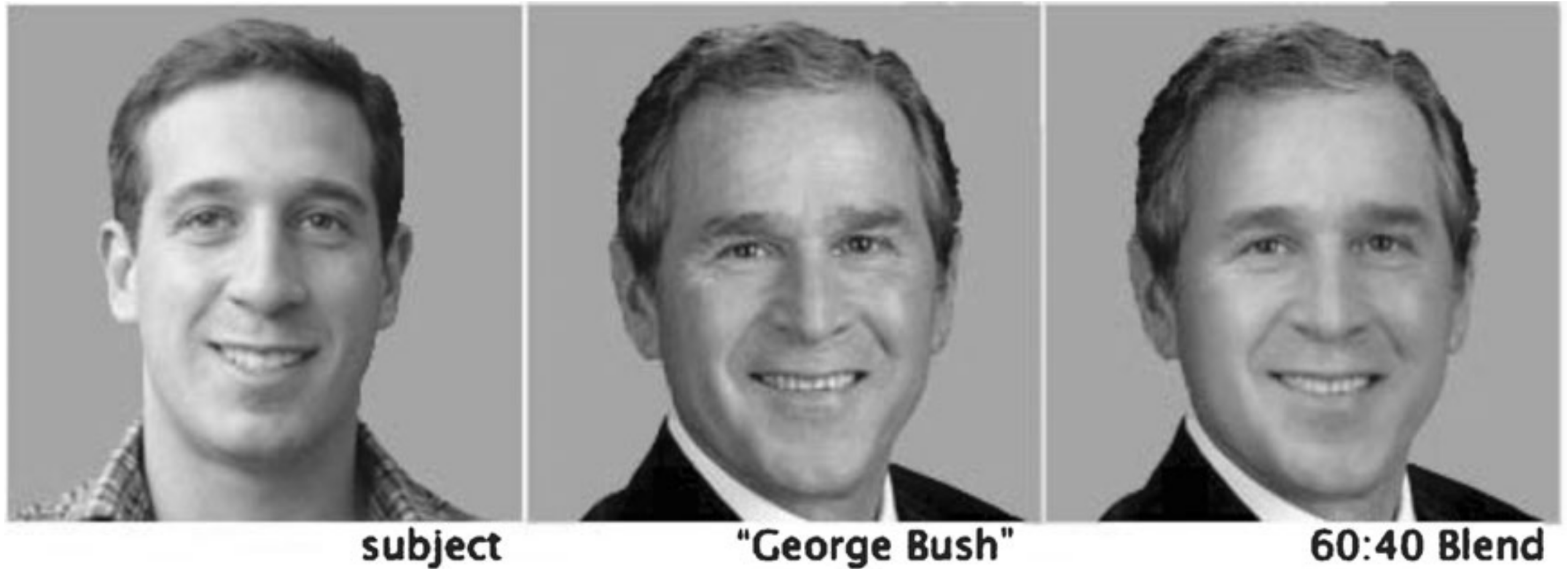
99.3 % confidence

Human hacking?





Humain Hacking



Source: Bailenson et al, « A facial similarity between voters and candidates causes influence », 2008
Thanks to Claude Castellucia, Inria

Nudging, manipulation and democracy

Chatbots, social networks, information providers rise important ethical issues when dealing with

- nudging
- disinformation
- manipulation

Trust and Responsibility

- **The challenge is not only coming from manipulation or attack possibilities :**
 - Google, gmail, googledoc, doodle, unmastered clouds, Windows 365, social networks, smart speaker, ...
 - All you have to do is harvest!
- => Raise awareness, educate and train in digital literacy and ethics, for all and NOW**

☀ Information, human and digital

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Digital Ethics is now a main global concern

- With strong French, German, Japanese, European and Canadian culture and initiatives (eg AI HLEG, GPAI, ...)
- In a complex international context (eg IEEE, China, ISO, GAFAM, ...)

GLOBAL FORUM
ON AI FOR HUMANITY

ABOUT THE FORUM

PROGRAM

PRACTICAL INFORMATION

Registration

Paris • Oct. 28th - 29th - 30th

International multidisciplinary forum to

**put the progress of AI
for the benefit of humankind**

See the program

Register



INDEPENDENT
HIGH-LEVEL EXPERT GROUP ON
ARTIFICIAL INTELLIGENCE
SET UP BY THE EUROPEAN COMMISSION



POLICY AND INVESTMENT RECOMMENDATIONS
FOR
TRUSTWORTHY AI

Ethics, moral, deontology, integrity, law

- **Ethics:** positioning on value hierarchies, along the way, based on experience as well as personal and collective reflection
- **Moral:** ~ethics, but also social or religious moral
- **Deontology:** the rules of the profession, eg Hippocrates' oath
- **Integrity:** absence of bad intention, honesty
- **Law:** eg civil code, national, international, subject to interpretation



Copyright © 2006 David Farley, d-farley@ibiblio.org
<http://ibiblio.org/Dave/drfun.html>

This cartoon is made available on the Internet for personal viewing only. Opinions expressed herein are solely those of the author.

Values on a “simple” example

- anonymat
- ergonomomy
- empowerment
- respect
- reversibility
- autonomy

Ethics: positioning on value hierarchies, along the way, based on experience as well as personal and collective reflection



View points of:

- The designer, phone company, ...
- The user
- The Programmer

Another example

Every single technical framework, every line of code, every interface represents a choice, indicates a judgment and carries values.

Technology is not an excuse for evading responsibility by claiming to be neutral, but should instead become a gateway to inspire thinking, awaken wisdom, and spread mainstream values.

Chinese Communist Party

Another example

Every single technical framework, every line of code, every interface represents a choice, indicates a judgment and carries hierarchies of values that should be made explicit.

Technology is not an excuse for evading responsibility by claiming to be neutral, but should instead become a gateway to inspire thinking, awaken wisdom, and spread mainstream values that should be made explicit.

Prioritize which values?

Beneficence

Respect

Environnemental quality

Not maltreatment

Transparency

Equality

Autonomy

Security

Reproducibility

Justice

Honesty

Loyalty

Privacy

Generosity

Gratuity

Right to withdraw

Courage

Liberty

Dignity

Solidarity

Informed consent

Examples

Ethics: positioning on value hierarchies, along the way, based on experience as well as personal and collective reflection

- I am an engineer or a scientist and I discover a 0-day vulnerability...
- I am the HR Director of a company and I organize trainings for the staff of the company...
- I am a medical doctor and I use gmail or dropbox to communicate patient data...
- I am a developer and I design and implement algorithms for a car manufacturer ...

What ethical reflections should I base myself on for thinking about dilemmas?

Authenticate

Location Where are you going? | Check in Add dates | Check out Add dates | Guests Add guests

✕ **Log in**


Country/Region
France (+33) ▾


Phone number


We'll call or text you to confirm your number. Standard message and data rates apply.


Continue

or

 Continue with email

 Continue with Facebook

 Continue with Google

 Continue with Apple

Don't have an account? [Sign up](#)

Le Monde

Connectez-vous

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exemple@mail.com

Mot de passe

Saisissez votre mot de passe

Afficher le mot de passe

Rester connecté(e)


Se connecter


[› mot de passe oublié ?](#)

Vous n'êtes pas inscrit sur *Le Monde*

[› Inscrivez-vous](#)

OU

 Se connecter avec Google

 Se connecter avec Apple

Ethics and scientific integrity: the case of plagiarism

gments of which one wrongfully claims authorship by reproducing them, with more

Characterization of plagiarism types:

- pillage (looting) of part of a publication
- pillage of ideas and results
- pillage by changing the language of writing
- self-plagiarism
- paraphrase
- omission of quotation

Digital ease plagiarism! But detection as well

How to act in case of proven plagiarism
(by an authorized body)?

- action, sanction?
- Tension between legal and ethical issues

Which ethics?

- Deontological
 - Principles and guidelines
- Consequentialism
 - Act in ways that produce the best consequences
 - Precautionary principle
- Virtues
 - Balance values and vices

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Academy / Research

- Exemples
 - . Cybersecurity, machine learning, data collection and usage, man-machine interactions,...
- Issues
 - . What science, what research for whom and how ?
 - . Social responsibility of scientists
- Organize
 - . Educate in digital and ethics, in particular master and PhD students
 - . Set up operational digital ethics committees
 - . Set up scientific integrity review boards

Economy / Innovation

- Exemples
 - . Services design, software development, HR management, company or users data managements, authenticate, ...
- Issues
 - . The ethical qualities of a company, an algorithm, a protocol, an application, an innovation as a competitive advantage
 - . Corporate social responsibility
- Organize
 - . Educate in digital and ethics all employees of the company, in particular its managers
 - . Set up internal ethics committees

Society / Democracy

- Exemples
 - . Digital and justice / health, elections, autonomous vehicles, social networks, disinformation, ...
- Issues
 - . Human dignity and autonomy
 - . Social responsibility of the individual
- Organize
 - . Educate in digital and ethics all citizens
 - . Citizen debate on the digital future
 - . Set up national and international digital ethics committees

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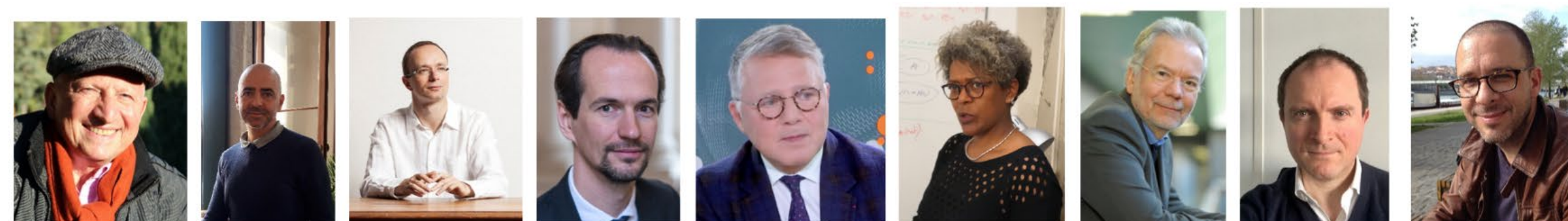
For instance, the French national committee for digital ethics

- Pilot committee created last décembre 2019, under the aegis of CCNE, at the request of the prime minister:
 - ▶ <https://ai-regulation.com/the-french-national-committee-for-digital-ethics>
- See contributions like
 - . Reflections and warning points on digital ethics issues in situations of acute health crisis: https://www.ccne-ethique.fr/sites/default/files/publications/ethics_watch_bulletin_ndeg1.pdf
 - . Ethical issues in the fight against disinformation and misinformation: <https://www.ccne-ethique.fr/en/actualites/national-pilot-committee-digital-ethics-ethics-watch-bulletin-no2>
- Call for contributions on chatbot and nudging: <https://www.ccne-ethique.fr/en/actualites/cnpen-ethical-issues-conversational-agents>

The French National Pilot Committee for Digital Ethics

27 members covering: Informatics, robotics, law, philosophy, ethics, economics, medical doctors, engineers, entrepreneur, a member of the French parlement, a member of the CNIL, scientific culture, historian

With active connections with ethics committees in France and internationally: health, army, education, CNRS — HLEG, GPAI, Unesco, IEEE, WHO



April 7th, 2020: First opinions

Reflections and warning points on digital ethics issues in situations of acute health crisis

<https://www.ccne-ethique.fr/en/publications/national-pilot-committee-digital-ethics-ethics-watch-bulletin-no1>

with focus on two points:

- **Fraternity**: points of ethical attention to digital tools
- **Tracking** of individuals with digital tools

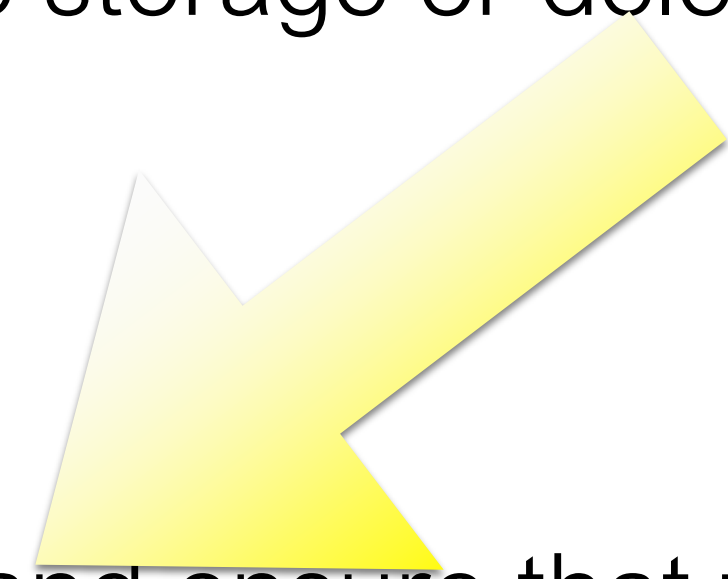
Fraternity: Use of communication interfaces

To the institutions that provide care for vulnerable people and possibly to the legislature:

- Establish a role of communication mediator between an elderly or sick person and their relatives through controlled communication interfaces.
- Ask for the prior consent of the individual, or the person legally responsible for representing them, before choosing their communication interfaces.
- Provide for discernment and decision-making procedures relating to the storage or deletion of images, sounds or conversations recorded with vulnerable persons.

To the whole population:

- Use digital interfaces that respect the dignity of the people concerned, and ensure that these interfaces do not replace physical presence once the lockdown has ended.
- Abstain from posting end-of-life images of patients on social media.



July 21, 2020: Ethical issues in the fight against disinformation and misinformation

<https://www.ccne-ethique.fr/en/actualites/national-pilot-committee-digital-ethics-ethics-watch-bulletin-no2>

I. MODERATION TOOLS AND VIRALITY MECHANISMS

- Automatic tools to fight online disinformation and misinformation spread.
- Virality mechanisms
 - a) Platforms' business model encourages virality
 - b) Viral mechanisms and the role of users

II. THE ROLE OF THE AUTHORITIES

- The authority acquired by the platforms
- The authorities on which the platforms depend

Need of human moderation to check the results generated automatically by the content analysis algorithms

Some ethics ``constants''

- **The fundamentals of Ethics:**
« Exceptional situation should not induce exceptional Ethics »
- **Intangible value and principles:**
Dignity, principle of proportionality, adequacy and regular control of restrictive measures

A **red line** in the CCNE and CNPEN's Opinions

- A major issue of acceptability and citizen's engagement:
« Etre informé pour comprendre et comprendre pour être acteur »
- Transparency of information and decision making process
- Favor all kinds of public debates and participations

☀ L'information, l'humain et le numérique

Ethique et numérique

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To open discussion

The digital at the heart of the basic needs of individuals and societies

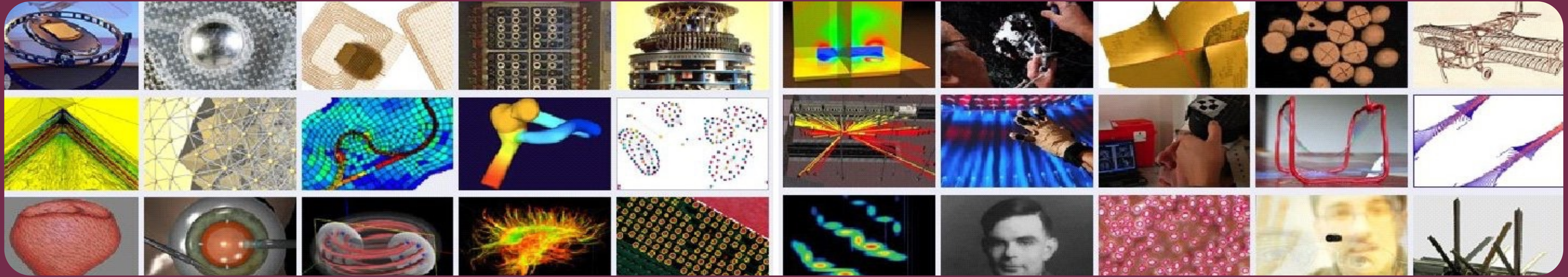
Ethical thinking, an imperative of **digital humanism**

Ethics is also a **competitive advantage**

Open source an opportunity for greater "**ethicality**"

Digital and ethics education enable true **accountability**

Ethics thinkings should be organized and allow for public debates at the national and international levels for digital science, technology, uses and innovations.



**Thank you
Merci**

claude.kirchner@inria.fr