

π DAY

3.14.2024



REPORT

Roundtable

“The Hunt for an AI π ”

14th March 2024, 5:00 pm (ECT)
OCCAM HQ, Milano, Italy



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INTERVENTIONS



Professor Rita Pizzi, *Quantum Blockchain Technologies, PLC*

In the mathematical equations governing the structure of the macrocosm, such as those of Maxwell, there is a wide presence of the Greek letter π with its infinite decimal numbers, as it is a transcendental number.

There is a relationship between π and the concept of beauty, developed in mathematics and explored by painters, sculptors, musicians, and in the fields of architecture, cinema, photography, and literature. The golden ratio related to π was used by ancient artists, such as Leonardo da Vinci in *The Vitruvian Man*.

In the field of Artificial Intelligence, calculating π with high precision and speed is supporting scientific research. The infinite number of decimals and their precision are beneficial in cryptography, making it more complex to decipher an algorithm with π .

Historical data exhibit periodicity and are composed of sines and cosines, thus involving π as their basis. This is also applied to the prediction and analysis of all periodic behaviors, extending to the field of medicine, as the human body can be analyzed through different signals with periodicity, such as an electrocardiogram. Moreover, π is now used as a high-precision threshold in classification algorithms.

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These considerations should lead us to promote the study of mathematics to develop a widespread scientific culture, which is more reasoned and therefore more ethical, in order to manage AI proactively and not destructively towards humanity.

The ethical issues of AI involve privacy, transparency, robotic control, and many other aspects. On March 13, the European Union approved the AI Act, becoming the first international institution to regulate in this field, addressing several aspects, including privacy.

Today, the debate on AI often still focuses on a limited part visible to the public, despite the wide range of hidden AI applications operating in sectors such as medicine, scientific research, robotics, and industrial development. This so-called positive AI is evolving rapidly and is offering very important resources, such as its contribution to the field of sustainability.



Arch. Pierpaolo Saporito: President, OCCAM

A full comprehension of the AI includes the components that determine it and how they can be oriented.

The Infopoverty World Conference, organized by OCCAM since 2001, aims to fight poverty and promote a new dimension of collaborative support and global development. In this context, it is crucial to explore the complex ecosystem of algorithms, driven by the so-called "Big 7," the major companies holding economic power equal to about 12 trillion dollars, nearly the size of the European GDP, and controlled by very few individuals, whose access to the keys remains strictly reserved.

Today, as we are facing a mass of about 4 billion people living in poverty conditions, there is a ruling elite that can tackle market overproduction and saturation. However, the risk of an economic collapse similar to that of 1929 is now feasible due to the advent of smartphones and computers reaching a level of total saturation without fostering the emergence of new markets and new buyers.

AI acts to influence every element and cognitive process that occurs between our neurons. Such a process stems from sophisticated research where algorithm developers gather and synthesize a vast amount of data. Thanks to this approach, it is possible to delve into the neurological recesses of the human brain, discovering a series of mechanisms and distortions on which to operate according to the dictates of cognitive science. This allows an internal manipulation of the mental process, educating the brain to function in hetero-imposed ways, such as with "wow language."

This neo-positivist optimism can represent one of the most dangerous and operative parts of the entire process. Therefore, the final result will not simply be a further expansion of our cognitive abilities, but it could lead to significant changes in the functioning of both individual and collective human minds.

Facing this reality requires deep reflection and concrete proposals to create alternatives that address the general interests. It's not just about regulating *ex-post*, but actively intervening

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in the process with clear ethical inputs. Therefore, the objective of this roundtable is to initiate research and formulate proposals that will be discussed at the XXIII Infopoverty World Conference on April 12, 2024, at the UNHQ in New York and online on UN Webcast.



Professor Alfredo Ronchi, Politecnico di Milano

We have been concerned with the impact of digital innovation on social fabric for a long time, examining the transition and the new connections it creates.

Today, we reflect on what has been done during the 90s, such as the support offered by the metaverse to bring students into virtual environments or for applications in the healthcare sector, among others. However, we are witnessing the investment of substantial resources by institutions towards the development of technologies whose trajectory toward widespread adoption remains uncertain.

There is a dispute between the West and the East in the field of big data analysis and social media, where concerns arise on the fact that machine learning is primarily based on data from the West, and thus on intelligence and skills derived from a culture that is not representative of humanity. However, these tools are also fueled by our worldview. This phenomenon also raises concerns about the loss of cultural identity, as various social media platforms and Wikipedia spread a uniform view of reality worldwide. These issues stem from the lack of cooperation or involvement in the development of certain technologies by humanities and philosophical disciplines, which could contribute to a better understanding of the social impact. These topics will be at the center of debate in Geneva in May, where AI will be the main topic.



Professor Francesco Bertolini, Bocconi University

This is a new topic to me, as I focused my studies on sustainability and SDGs. I believe it is crucial to consider the issues related to AI within this field.

Today, around 100 billion tons of resources are extracted annually, and it is necessary to reflect on how to create a more sustainable and circular system. While technology might deceive the world into thinking it is more sustainable, instead, it could lead us towards a catastrophe or a world with fewer inhabitants or increased poverty.

AI cannot solve all the sustainability issues by itself, but it represents only a part of the solution, and many current sustainability-related initiatives may be considered futile in the long term. The digital realm, which is central to many of these initiatives, is a fragile system controlled by a few entities. The transition from physical interpersonal relationships to virtual ones, the so-called "metaverse," may lead to rules and dynamics that can restrict our freedoms. Furthermore, there are serious dependencies associated with the collection and analysis of digital data, which can be dangerous to people's privacy and security. It is therefore important to carefully consider the impact of AI and digital technologies on our sustainable future, ensuring they are used responsibly and ethically for the common good.

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Salvatore Crapanzano, Engineer

I agree with the reflections already expressed. The issue of privacy seems to be an illusion: as we have to deal with several initiatives contributing to reduce CO2 emissions without bringing any real benefit, facing scenarios with fuel deception and the increase of poverty.

Generative AI is a complex mechanism that operates by giving the machine access to a vast amount of information. However, there is an attempt to avoid using the most recent and updated information, that is too numerous to manage. In this context, it is crucial to consider the environmental and social impact of these new technologies, ensuring their responsible and ethical use for the common good.

The AI Act approved on March 13th by the EU deal with the concept of risk: this is an innovative approach, but too slow if compared to the speed at which things are evolving. This new regulation establishes whether one is in a high-risk area, such as health, and therefore can proceed without restrictions. However, since the risks are already evident, it is essential not to passively be carried into the future but to begin clearly defining which information is indispensable to gain access.

There is often a lack of transparency about our rights and the methods of using our personal data: this is a critical issue that must be addressed urgently and decisively.



Alessandro Mandelli, Fondatore e AD, Serially

As I'm working in the media sector, I have direct experience with Artificial Intelligence and its contribution: this is a stimulating field, as it replaces human experience with that of machines.

From an educational point of view, AI offers rapid accessibility to a vast background of information. However, concerns arise regarding the quality of such information. While there is a benefit in the speed of accessing data that would otherwise be scarce or difficult to find, AI primarily relies on data available on the internet, which can be not only incomplete but also false. This exposes us to risky dynamics.

As a result, the experience of machine learning can be distorted due to the problem of data sourcing. Although we can enrich our background knowledge and understand some phenomena more deeply, the situation changes dramatically when it comes to analyzing details.

The reliability of information sources represents a crucial theme; furthermore, there is an issue of information governance, control, and generative capability. We often encounter intelligent systems that handle hot air, unable to distinguish reliable sources from unreliable ones.

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To conclude, we have a certain trust in the potential of technology as a facilitator of new processes and innovations. However, we must be aware that these systems can still be immature and require special attention.



Dario Margiotta, Engineer

What does it mean to develop an ethical framework? I have identified some fundamental principles that should be included: respect for fundamental rights, the principle of non-discrimination, quality and safety, transparency, impartiality, fairness, and the principle of user control.

However, I wonder why humans still fear Artificial Intelligence more than other types of technological inventions. Humans typically perceive novelty as a threat to their existence, but AI seems to have become a particularly controversial object. While it was only coded until the end of the 1980s, today we have machine learning and deep learning systems, which in some way reproduce the functioning of the human brain. We can even make a character "speak" and say things they would never have said.

This fear is understandable, but now we still have control, as it is still humans who provide input for AI. The real problem could arise when true thinking, AI develop. Luckily, we still have time to act before this happens; it could happen now, as technological evolution is becoming invasive and fast (most countries in the world have not yet deployed 5G, and already there is talk of 6G). We must act now; the EU and UNCTAD must act, and it is an opportunity for OCCAM.

FINAL PROPOSALS

- *Promoting the establishment of a proactive observatory for the ethical development of AI, in order to explore its operations toward social progress;*
- *OCCAM can act as the promoting entity of this process, in collaboration with institutions such as the Italian Institute of Bioethics, through research, seminars, and study groups.*
- *The United Nations seems to be the only entity empowered to promote the implementation of solutions;*
- *The AI Act, approved on March 13, 2024, by the European Parliament, represents a fundamental step towards regulating AI, but it will require further policy insights and will become operational in two years*
- *In particular, the issue of user data needs to be addressed, in order to clearly and transparently define the methods of using personal data, giving people an informed understanding of the mechanisms of AI that involve them.*