

Science at six o'clock: ethical and technological challenges of artificial intelligence and health

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A big audience at MUSE for "Would you let a robot treat you?", the fourth event of the "Science at six o'clock" series of meetings, which saw the participation of Giuseppe Jurman from FBK and Carlo Casonato from the University of Trento

The applications of **artificial intelligence** and **robotics** are now edging their way into our lives, promising to revolutionize them in a way that was totally unthinkable until a few years ago. Among the many sectors affected by the technological revolution, however, there is one that impacts all of us: **medicine**. Putting not only **scientific**, but also **ethical** and **legal challenges**: to what extent should doctors delegate their work to machines? And within what legal boundaries?

All this was discussed at "**Would you let a robot treat you?**", The fourth event of the series of science happy hours entitled "Science at six o'clock", organized by MUSE, FBK, the Mach Foundation and the University of Trento – with the coordination of the Autonomous Province di Trento – which sees researchers interact with the public on topics of scientific relevance. The debate was led by **Giuseppe Jurman**, a researcher with the MPBA Unit at FBK, and **Carlo Casonato**, full professor of comparative constitutional law from the University of Trento. Also on this occasion, the public responded with a **very large participation**, which has been estimated at about seventy people.

At the **MUSE** cafeteria, which hosts the meeting series, the debate was heated right from the start. Jurman started recalling the huge progress made by artificial intelligence in the past ten years, which has led to the development of machine learning and deep learning: machines today do not just execute instructions given by human beings, but are able to **learn**, thus **self-training**. And applications in medicine are increasingly effective, not only thanks to **robotic** means used, for example in the surgical field, but also due to the ability of artificial intelligence systems to **process data** with a speed that is unthinkable for human beings. And sometimes with the same level of

efficiency. In this regard, Jurman cited a recent [work](#) published in the journal Nature in which the effectiveness of an artificial intelligence algorithm in diagnosing **skin tumors** was compared with that of 21 dermatologists: the results showed a strong overlap in the diagnoses.

Casonato instead pointed out that the pace of law is much slower than that – very fast – of science, and that **regulations** on this matter are virtually non-existing everywhere as of yet. He recalled, though, some interesting cases from which we should learn, like that of an artificial intelligence system developed in **China** that has recently obtained the qualification to practice the medical profession.

But “would you let a robot treat you?” – besides being the title (provocative or not) of the event – was also the question that hovered throughout the debate. Jurman recalled a recent **survey** conducted on a sample of 11 thousand people from 12 different countries, in which almost 65% of respondents said that they would let a machine that acts independently of a human being treat them. And the percentage goes up if the machine is assisted or guided by a doctor in the flesh. “I’m not part of that 65%,” said Casonato, recalling the importance of the **human relationship** between physician and patient. And some doctors present in the room, who had their say during the debate, stressed that a physician could never be fully replaced by a machine, while admitting the usefulness and importance of the technological means that are available to them today.

The debate then shifted to more strictly legal issues, with Casonato recalling the recent legislative changes on “**informed consent**” on the part of patients regarding any form of health treatment, posing the problem – very current – of **privacy**, a particularly delicate one when it comes to health.

Ultimately, also this time “Science at six o’clock” has hit the target by offering a lively and interesting debate on a very topical issue, that arouses strong feelings in citizens. The cycle of happy hour meetings will go on with the last two dates: Monday, May 28 we will talk about the **monitoring of mammals** in the Alps with Francesca Cagnacci from the Mach Foundation, Amy Murphy from FBK and Simone Tenan from MUSE, while Wednesday, June 6, Valeria Lencioni from MUSE and Emanuele Eccel from the Mach Foundation will discuss **climate change**.

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