

Artificial intelligence: the strategies of Big Tech

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This afternoon, Palazzo Geremia hosted the panel organized as part of the Trento Festival of Economics with the participation of Paolo Traverso

Artificial intelligence is increasingly showing its great potential. In particular, in the field of generative artificial intelligence, there is the tremendous power of the so-called Big Tech, the big companies that can afford to invest billions and have a computational capacity, a hardware, beyond any possibility compared to small medium-sized companies or research institutes. There is a downside, though.”

So **said Paolo Traverso**, director of Strategic Planning at Fondazione Bruno Kessler – a pioneer in Italy in artificial intelligence research – during his talk this afternoon at Palazzo Geremia at the Trento Festival of Economics.

In the panel “**Artificial Intelligence: the Strategies of Big Tech,**” attended by **Pier Antonio Azzalini** (chief information officer, Fincantieri), **Rita Cucchiara** (University of Modena and Reggio Emilia), **Marco Gay** (Executive Chairman, ZEST), **Marco Trombetti** (Co-Founder and CEO, Translated) and **Fabio Vaccarone** (CEO Multiversity), **Traverso** pointed out: “One factor that should not be underestimated is that this race for computational power, for ever-larger systems with lots of parameters and trained with an immense amount of data, has a sustainability problem, both in terms of investment and energy. There is an upper limit that cannot be exceeded, and there is a big space here for other organizations as well: both for companies that are not BigTech and can collaborate with them, and for research, including public sector research.

At Fondazione Bruno Kessler, we see that so many companies or public institutions come to us asking for artificial intelligence systems to solve their problems. These companies require specific, customized, reliable solutions. We need to understand what is the right data to use, what is the best software architecture, and so on. Research can strongly help solve the problems of reliability of these technologies and the very high energy consumption that becomes environmentally unsustainable. So it opens up possibilities for organizations that are able to build systems that are arguably simpler, smaller, but for a given task are actually able to be reliable and meet the needs of customers who are trying to use artificial intelligence in real life cases.”

When asked for **some examples** where this has been made possible, **Traverso** continued: “There are several experiences in FBK that reflect this market space. Starting with applications for health and medicine. In the Trento Healthcare System, we are adopting a product – which will also be introduced in a dozen other healthcare systems in Italy – that can use artificial intelligence techniques to analyze the retinal images of people suffering from diabetes and direct doctors to those cases where their intervention is needed. Also, we are helping Parkinson’s physicians with predictive AI models that can detect the risk of a patient’s condition worsening over the years – for example, the risk of falling or cognitive impairment-so that not only physicians, but also family members and caregivers, can act as early as possible. Furthermore, we also use generative artificial intelligence – the same technology that in some cases is used to generate fake images, which we are very concerned about -utilizing its positive potential and that is to generate digital images that do not belong to real patients but are realistic and validated by physicians. These are useful in training systems that can in turn help other anatomical pathologists to focus on cases where their intervention is needed. Consider how useful this technology can be in treating rare diseases, where there is not enough data from “real” patients to train artificial intelligence systems. We use modern AI techniques in other areas as well, such as agriculture, for example in a project with the Autonomous Province of Trento, the Edmund Mach Foundation and Trentino Digitale, to monitor and responsibly use irrigation water usage in the fields, to help Meteo Trentino and the European Center for Climate Change predict extreme weather events, to help companies that want to improve their production process, for example by significantly reducing the number of products rejected. These are examples where public research and private companies can work together to solve customer problems and significantly improve services for people.”

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