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IN TECH WE TRUST. OR DO WE?

PONTIFICIA UNIVERSITÀ GREGORIANA

Father Paolo Benanti is a full-time professor at Pontifical Gregorian University, Rome, in the fields of Ethics of Technology, Digital Technology, and AI. He is also an advisor to the Pope and works with entities of the Holy See such as the Pontifical Academy for Life and the Pontifical Council for Culture.

HARNESSING TECHNOLOGY TO HELP THE WEAKEST

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What is the position of the Church on new technologies?

— The Church and technology can be strong allies in retaining a sense of community in today's changing social environment. We can harness technology to help the weakest in society, children and the elderly, to bring them back into the community and give them a sense of belonging.

However, we can't ignore that digital tools could equally be used to alienate vulnerable people in an insidious way by pushing them towards purely online interactions as a substitute for "real" social relationships. The mission of the Church in this context is to be an active voice to reinforce the importance of the timeless values of caring and togetherness.

DEVELOPING GUARDRAILS TO KEEP TECHNOLOGICAL DEVELOPMENT ON TRACK

Are there any new technologies that particularly worry you?

— It is not about specific technologies but the ethos according to which they are implemented. Machine learning and artificial intelligence, for example, have the ability to predict but not to explain. Can we accept the risk that artificial bias could be propagated at incredible speed by an indefatigable algorithm, if left to run without human oversight?

We must develop a "guardrail" to keep technological development on track. The same challenge applies to genetics, where you risk losing control over the nature and purpose of genetic modifications if they are removed from a social context and simply calculated by algorithms as being viable or otherwise. Biotechnology could allow us to eradicate hunger from the face of the Earth, or it could allow a new form of cartel control, with the production of synthetic meat eradicating the market for real meat, and wiping out livestock farmers. It could also be employed by richer countries to control poorer ones by creating a dependence on means of production held only by the few.

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Over the past 100 years, the position of the Church has become clear: technology should be used to support communities in developing as they want to, rather than used to dictate the direction of that development. The problem lies not in the technology itself but in the lack of a guardrail; that is what we must keep top of mind. And to design that guardrail, we need an alliance between civil society, business, political power – and the goodwill of the people.

Is there any new technology that you are particularly excited about?

— Actually, I have a couple of examples. I have access to GPT-3.[1] This is exciting because I have a machine that is the perfect interface between myself and the computer. The machine can transform a high-level task into a series of elementary tasks that an unskilled human being can follow, step by step, and accomplish something. So, GPT-3 as a fluid interface between man and machine for me is exciting. The other exciting technology is AlphaFold.[2] The ability to predict a protein's 3D structure from its amino acid sequence is a wonderful innovation for drug discovery. These two technologies constitute a giant leap forward.

"An exciting technology is AlphaFold. The ability to predict a protein's 3D structure from its amino acid sequence is a wonderful innovation for drug discovery."

1. GPT-3 is the third-generation language prediction model in the GPT-n series created by OpenAI, a San Francisco-based artificial intelligence research laboratory.
2. AlphaFold is an artificial intelligence program developed by Alphabet's/Google's DeepMind, that performs predictions of protein structures.

SYNTHETIC BIOLOGY: BOON OR BANE?

"In many countries in which genetically modified crops are used, one effect is a displacement of power of production, which means that conventional farmers are impoverished. This is an issue of social injustice."

What are the guiding principles for the Church in respect to advancements in synthetic biology?

— There are two ethical principles that underlie the Church's position, especially since the installation of Pope Francis. The first is the precautionary principle that essentially means: "Think twice, cut once." The second is to consider the social impact of technology. For instance, in many countries in which genetically modified crops are used, one effect is a displacement of power of production, which means that conventional farmers are impoverished. This is an issue of social injustice.

How does the Church view advancement in synthetic biology, human enhancement, and genetic engineering?

— In terms of crops, we have to recognize that seeds are selected by a natural process over centuries as they are exposed to a variety of weather conditions. If we lose this kind of biodiversity by concentrating on the production of GMO seeds, we may lose protection against future unforeseen conditions, as all remaining strains may be vulnerable, rather than just a selection. Applying the precautionary principle, we should seek to preserve biodiversity because we cannot know all the possible consequences of not doing so.

We also need to recognize that animals have the right to a certain dignity of life, without unnecessary suffering. Due to the scarcity of human organs for transplant, organs from genetically engineered pigs can be vital in saving lives. At the same time, in some countries, experimentation is being undertaken to augment pigs, so that they develop more muscle than they would naturally. This latter kind of technology is an ethical gray area and needs to be kept in check.

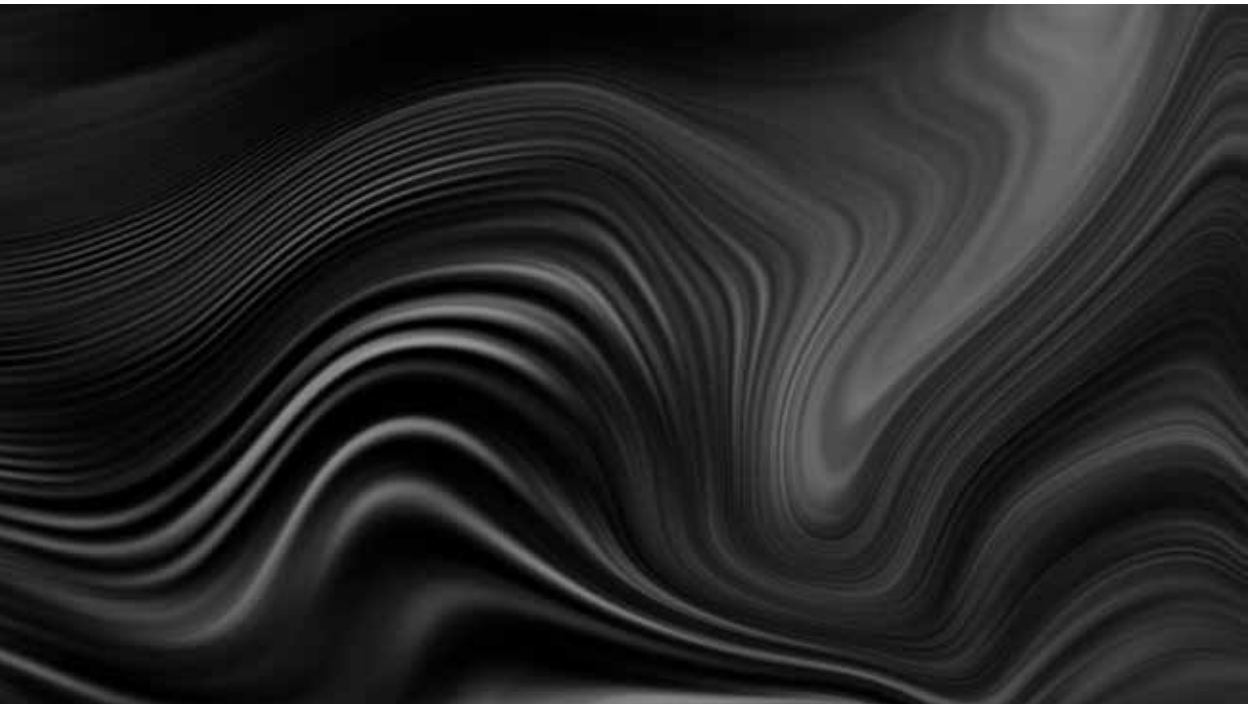
Even more worryingly, there are experiments using synthetic biology to augment humans. As well as the possibility that this could give rise to sinister inequalities, there is also the problem again of poorer countries becoming experimenting grounds for rich countries. The Church continues to oppose this kind of unjust, unethical experimentation.

THE ROME CALL FOR AI ETHICS

You helped draft an ethical commitment for AI, entitled The Rome Call for AI Ethics, which was endorsed by Microsoft and IBM. Could you elaborate more on this commitment?

— The idea is to keep humans in the loop with AI. AI should be used not simply to optimize cost efficiency but to enhance human cognition and, ultimately, make better choices. This kind of ethical design, with human sensibilities at the center, is where we want to find common ground with Big Tech. Tech giants have a lot of power in society and they require guidance in keeping that within humane bounds.

The idea is to foster a culture of ethical conversation, with multiple voices from a range of companies. We cannot set international regulations, but we can encourage the right kind of ethical culture. We can anticipate, we can give some direction, and we can help people find areas of agreement, of consensus, where we can then move forward together. We want the children of today to grow up in a world where ethics is a strong governing force in technological development.



The Church is also reaching out to other religious leaders to draft a multi-religious ethical charter to protect society from the harmful impacts of AI. Could you elaborate on this?

— We are hoping to sign an ethical charter with Muslim and Jewish leaders. Next year, we will go to Japan to discuss this with leaders of Buddhism and other religions. This cultural network to facilitate discussion is the greatest soft power that religion has today. We have to provide the platform for discussion of these issues.

What does a positive future impact of technology look like to you?

— The best that technology can do is make our lifestyle sustainable. I admire everyone who is using technology to make the circular economy a reality. On that basis, we can continue to build towards a future where technology is our friend, rather than something to be feared.

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