

# Ethics of Artificial Intelligence

28 February 2020

**Address prepared by Pope Francis, read by H.E. Archbishop Paglia, President of the Pontifical Academy for Life**

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Distinguished Authorities, Ladies and Gentlemen, Dear Brothers and Sisters,

I offer you a cordial greeting on the occasion of the General Assembly of the Pontifical Academy for Life. I thank Archbishop Paglia for his kind words. I am grateful too for the presence of the President of the European Parliament, the FAO Director-General and the other authorities and leaders in field of information technology. I also greet those who join us from the Conciliazione Auditorium. And I am heartened by the numerous presence of young people: I see this as a sign of hope.

The issues you have addressed in these days concern one of the most important changes affecting today's world. Indeed, we could say that the digital galaxy, and specifically artificial intelligence, is at the very heart of the epochal change we are experiencing. Digital innovation touches every aspect of our lives, both personal and social. It affects our way of understanding the world and ourselves. It is increasingly present in human activity and even in human decisions, and is thus altering the way we think and act. Decisions, even the most important decisions, as for example in the medical, economic or social fields, are now the result of human will and a series of algorithmic inputs. A personal act is now the point of convergence between an input that is truly human and an automatic calculus, with the result that it becomes increasingly complicated to understand its object, foresee its effects and define the contribution of each factor.

To be sure, humanity has already experienced profound upheavals in its history: for example, the introduction of the steam engine, or electricity, or the invention of printing which revolutionized the way we store and transmit information. At present, the convergence between different scientific and technological fields of knowledge is expanding and allows for interventions on phenomena of infinitesimal magnitude and planetary scope, to the point of blurring boundaries that hitherto were considered clearly distinguishable: for example, between inorganic and organic matter, between the real and the virtual, between stable identities and events in constant interconnection.

On the personal level, the digital age is changing our perception of space, of time and of the body. It is instilling a sense of unlimited possibilities, even as standardization is becoming more and more the main criterion of aggregation. It has become increasingly difficult to recognize and appreciate differences. On the socio-economic level, users are often reduced to "consumers", prey to private interests concentrated in the hands of a few. From digital traces scattered on the internet, algorithms now extract data that enable mental and relational habits to be controlled, for commercial or political ends, frequently without our knowledge. This asymmetry, by which a select few know everything about us while we know nothing about them, dulls critical thought and the conscious exercise of freedom. Inequalities expand enormously; knowledge and wealth accumulate in a few hands with grave risks for democratic societies. Yet these dangers must not detract from the immense potential that new technologies offer. We find ourselves before a gift from God, a resource that can bear good fruits.

The issues with which your Academy has been concerned since its inception present themselves today in a new way. The biological sciences are increasingly employing devices provided by artificial intelligence. This development has led to profound changes in our way of understanding and managing living beings and the distinctive features of human life, which we are committed to safeguarding and promoting, not only in its constitutive biological dimension, but also in its irreducible biographical aspect. The correlation and integration between life that is "lived" and life that is "experienced" cannot be dismissed in favour of a simple ideological calculation of functional performance and sustainable costs. The ethical problems that emerge from the ways that these new devices can regulate the birth and destiny of individuals call for a renewed commitment to preserve the human quality of our shared history.

For this reason, I am grateful to the Pontifical Academy for Life for its efforts to develop a serious reflection that has fostered dialogue between the different scientific disciplines indispensable for addressing these complex phenomena.

I am pleased that this year's meeting includes individuals with various important roles of responsibility internationally in the areas of science, industry and political life. I am gratified by this and I thank you. As believers, we have no ready-made ideas about how to respond to the unforeseen questions that history sets

before us today. Our task is rather one of walking alongside others, listening attentively and seeking to link experience and reflection. As believers, we ought to allow ourselves to be challenged, so that the word of God and our faith tradition can help us interpret the phenomena of our world and identify paths of humanization, and thus of loving evangelization, that we can travel together. In this way we will be able to dialogue fruitfully with all those committed to human development, while keeping at the centre of knowledge and social praxis the human person in all his or her dimensions, including the spiritual. We are faced with a task involving the human family as a whole.

In light of this, mere training in the correct use of new technologies will not prove sufficient. As instruments or tools, these are not “neutral”, for, as we have seen, they shape the world and engage consciences on the level of values. We need a broader educational effort. Solid reasons need to be developed to promote perseverance in the pursuit of the common good, even when no immediate advantage is apparent. There is a political dimension to the production and use of artificial intelligence, which has to do with more than the expanding of its individual and purely functional benefits. In other words, it is not enough simply to trust in the moral sense of researchers and developers of devices and algorithms. There is a need to create intermediate social bodies that can incorporate and express the ethical sensibilities of users and educators.

There are many disciplines involved in the process of developing technological equipment (one thinks of research, planning, production, distribution, individual and collective use...), and each entails a specific area of responsibility. We are beginning to glimpse a new discipline that we might call “the ethical development of algorithms” or more simply “algor-ethics” (cf. [Address to Participants in the Congress on Child Dignity in the Digital World, 14 November 2019](#)). This would have as its aim ensuring a competent and shared review of the processes by which we integrate relationships between human beings and today’s technology. In our common pursuit of these goals, a critical contribution can be made by the principles of the Church’s social teaching: the dignity of the person, justice, subsidiarity and solidarity. These are expressions of our commitment to be at the service of every individual in his or her integrity and of all people, without discrimination or exclusion. The complexity of the technological world demands of us an increasingly clear ethical framework, so as to make this commitment truly effective.

The ethical development of algorithms – algor-ethics – can be a bridge enabling those principles to enter concretely into digital technologies through an effective cross-disciplinary dialogue. Moreover, in the encounter between different visions of the world, human rights represent an important point of convergence in the search for common ground. At present, there would seem to be a need for renewed reflection on rights and duties in this area. The scope and acceleration of the transformations of the digital era have in fact raised unforeseen problems and situations that challenge our individual and collective ethos. To be sure, the Call that you have signed today is an important step in this direction, with its three fundamental coordinates along which to journey: ethics, education and law.

Dear friends, I express my support for the generosity and energy with which you have committed yourselves to launching this courageous and challenging process of reassessment. I invite you to continue with boldness and discernment, as you seek ways to increase the involvement of all those who have the good of the human family at heart. Upon all of you, I invoke God’s blessings, so that your journey can continue with serenity and peace, in a spirit of cooperation. May the Blessed Virgin assist you. I accompany you with my blessing. And I ask you please to remember me in your prayers. Thank you.