CARTHAGINENSIA

Revista de Estudios e Investigación
Instituto Teológico de Murcia O.F.M.
ISSN: 0213-4381 e-ISSN: 2605-3012

Volumen XLI
Julio-Diciembre 2025
Número 80

SUMARIO

CARTHAGINENSIA

ISSN 0213-4381 e-ISSN 2605-3012
http://www.revistacarthaginensia.com
carthaginensia@itmfranciscano.org

Instituto Teológico de Murcia O.F.M.
Pza. Beato Andrés Hibernón, 3
E-30001 MURCIA

CARTHAGINENSIA fue fundada en 1985 como órgano de expresión cultural y científica del Instituto Teológico de Murcia O.F.M., Centro Agregado a la Facultad de Teología de la Universidad Pontificia Antonianum (Roma). El contenido de la Revista abarca las diversas areas de conocimiento que se imparten en este Centro: Teología, Filosofía, Historia eclesiástica y franciscana de España y América, Franciscanismo, humanismo y pensamiento cristiano, y cuestiones actuales en el campo del ecumenismo, ética, moral, derecho, antropología, etc.

Secretaría y Administración
M. A. Escribano Arráez. Pl. Beato Andrés Hibernón, 3. E-30001 MURCIA.
La suscripción de la revista impresa para 2025 en es de 40 € para España y Portugal, y 60$ para el extranjero, incluidos portes. El número suelto o atrasado vale 20 € o 30 $. Artículos sueltos en PDF 3 € o $ 5.
Any manuscripts and papers intented for publication in the magazine schould be addressed to the Editor at the following address: Cl. Dr. Fleming, 1. E-30003 MURCIA. Price for the printed magazine: Single or back issues : 20 € or $ 30. Single article in PDF 3 € or $ 5.

Antiguos directores
Fr. Francisco Víctor Sánchez Gil (+2019) 1985-1989. Fr. Francisco Martínez Fresneda, 1990-2016.

D.L.: MU-17/1986
Impresión: Compobell, S.L.

Carth XLI/80 Julio-Diciembre (2025) 767-788

Artificial Intelligence: Possibilities and challenges Franciscan humanism of fraternity

Inteligencia artificial: posibilidades y retos Humanismo franciscano de la fraternidad

Martín Carbajo Núñez, ofm
Pontificia Università Antonianum, Roma
mcarbajon@gmail.com
Orcid: 0000-0002-2814-5688

Recibido 14 de marzo de 2024 / Aceptado 15 de diciembre de 2024

Abstract: This article presents some of the "exciting opportunities and grave risks" of artificial intelligence in light of the recent magisterium of Pope Francis. This is not an easy task, as the term "AI" refers to a "galaxy of different realities" and there is not a single definition of it. Recently there has been a qualitive leap with generative AI (1st part). Its challenges must be addressed at the legislative and ethical levels (2nd part). More specifically, the Pope urges the adoption of a humanism of fraternity inspired by Francis of Assisi (3rd part).

Keywords: Artificial intelligence; ChatGPT; Pope Francis; Franciscanism; Ethics.

Resumen: Este artículo presenta algunas de las "entusiasmantes oportunidades y graves riesgos" de la inteligencia artificial a la luz del reciente magisterio del Papa Francisco. No es una tarea fácil, pues el término "IA" se refiere a una "galaxia de realidades distintas" y no existe una definición unívoca de ella. Recientemente ha habido un salto cualitativo con la IA generativa (1ª parte). Sus retos deben abordarse a nivel legislativo y ético (2ª parte). Más concretamente, el Papa insta a adoptar un humanismo de fraternidad inspirado en Francisco de Asís (3ª parte).

Palabras clave: Inteligencia artificial; ChatGPT; Papa Francis; Franciscanismo; Ética.

Artificial intelligence (AI) and other information and communication technologies (ICT) are already an integral part of our lives,[1] forming a living environment rather than merely tools we can choose to use or ignore. How can we responsibly inhabit this new cultural landscape in which we are all immersed? How can we effectively harness their great potential for good while mitigating its grave risks?

In January 2024, the Pope addressed the topic of AI in two significant messages for the World Days of Peace[2] and Social Communications,[3] highlighting the growing concern this issue raises both in the Church and society. Prior to this, the Pontifical Academy for Life has also organized several meetings and symposia on AI's implications in health.[4] On January 10, 2023, it also facilitated the involvement of representatives from Judaism, Islam, and other religions in revising the "Rome Call for AI Ethics" document, initially signed in 2020 by companies like Microsoft and IBM, among others.[5]

This paper explores some ethical challenges posed by AI, referencing recent teachings by Pope Francis. The first part overviews the complex concept of AI, emphasizing the advancements in generative AI. The rapid evolution of AI presents both "exciting opportunities and grave risks," which need to be addressed at both legislative and ethical levels (2nd part). Specifically, the Pope advocates for adopting a humanism of fraternity inspired by Francis of Assisi, as detailed in the third part.

---

[1] Some abbreviations: AI (IA): Artificial intelligence; LLM: Large Language Model; GPT: Generative Pretrained Transformer; NLP: Natural Language Processing; RLHF: Reinforcement Learning from Human Feedback. This is a technique of *Machine learning* (ML); UP: University Press.

[2] FRANCIS, «Message for the 58th World Day of Peace» (Jan 24, 2024), [*WDP*], in *OR* 19 (Jan 24, 2024) 8.

[3] FRANCIS, «Message for the 58th World Communications Day» (Jan. 24, 2024), [*WCD*], in *OR* 19 (Jan. 24, 2024) 8.

[4] PAGLIA Vincenzo – PECORARO Renzo (ed.), *Robo-Ethics. Humans, machines and health*, Pontifical Academy for Life, Vatican City 2020; ID., *The 'good' algorithm? Artificial intelligence: ethics, law, health*, Pontifical Academy for Life, Vatican City 2021.

[5] «AI ethics: an Abrahamic commitment to the Rome call,» in *Internet:* https://www.romecall.org/ai-ethics-an-abrahamic-commitment-to-the-rome-call-2/ (accessed: March 10, 2024).

1. Concept and rapid development

Scholars commonly refer to four industrial revolutions[6]: the first driven by the steam engine (18th century), the second by electricity (late 19th century), the third by digital technology (mid-20th century), and the fourth, initiated by artificial intelligence (AI). This latest revolution is characterized by AI's ability to predict human activities and the convergence of nanotechnology, biotechnology, and robotics. Rather than a completely new revolution, it is an evolution of the automation initiated in the 18th century, with potentially revolutionary social effects.

In the first industrial revolution, machines began performing many manual tasks, which required physical strength, displacing less skilled "blue-collar" workers. In contrast, AI is taking over tasks requiring specialization and cognitive ability, replacing many skilled "white-collar" middle-class employees.[7] However, replicating human sensorimotor and perceptual capabilities remains challenging for AI. For instance, it may struggle with tasks like plumbing.[8]

1.1. A complex and hard-to-define concept

AI has been present in various forms for quite some time, including social networks, virtual assistants, electronic payments, search engines, automatic translation, facial and voice recognition, robots, drones, autonomous cars, etc. According to F. Patsch, there have been four significant milestones in its implementation: in 2010, it began enhancing the quality of Internet searches to provide more relevant results; in 2014, it advanced to "reading

---

[6] Cf. Schwab Klaus, *The Fourth Industrial Revolution*, Crown Business, New York 2017; Rifkin Jeremy, *The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World*, Palgrave Macmillan, New York 2011. On the first and second industrial revolutions driven by steam power and electricity: Mokyr Joel, *The Lever of Riches: Technological Creativity and Economic Progress*, Oxford University Press, New York 1990.

[7] Gisotti Alessandro, «Entrevista a Benanti: "La inteligencia artificial al servicio del bien común",» in *Vatican News*, (Dec. 12, 2023), (https://www.vaticannews.va/es/mundo/news/2023-12/benanti-la-inteligencia-artificial-al-servicio-del-bien-comun.html).

[8] "It is comparatively easy to make computers exhibit adult-level performance in solving problems on intelligence tests or playing checkers, and difficult or impossible to give them the skills of a one-year-old when it comes to perception and mobility." Moravec Hans, *Mind children. The future of robot and human intelligence*, Harvard UP, Cambridge 1988, 15.

the users' minds" and anticipating their needs through virtual assistants like Cortana and Alexa;[9] in 2018, it progressed to perception AI, which recognizes objects; and by 2022, it reached the stage of generative AI.[10]

The term "AI" encompasses "a galaxy of different realities", making it challenging to provide an unambiguous and clear-cut definition.[11] It "embraces a variety of sciences, theories and techniques aimed at making machines reproduce or imitate in their functioning the cognitive abilities of human beings" (*WDP* 2004, 2), such as creativity, learning, and planning.[12] It might be more appropriate to use the term in the plural ("artificial intelligences") because their tasks are fragmented and only partially mimic or reproduce some human capabilities. Furthermore, once designed, their impact also depends on how they are used.

The lack of a clear definition complicates the efforts of those trying to regulate AI use and, at the same time, makes it easier for some companies to bypass potential regulatory limits.

---

[9] RankBrain, introduced in 2015, "uses artificial intelligence techniques to process and interpret search queries, with the goal of providing more relevant search results to users." JOHNSEN Maria, *The future of Artificial intelligence in digital marketing. The next big technological break*, CreateSpace, US 2021, 95. The Siri virtual assistant was introduced by Apple in October 2011. Many others followed.

[10] PATSCH Ferenc, «L'Intelligenza artificiale generative e il nostro futuro. Una urgente necessità di regolamentazione,» in *La Civiltà Cattolica* 4162/4 (2023) 313-325, footnote 1; HOLMSTRÖM Jonny «From AI to digital transformation: The AI readiness framework,» in *Business Horizons* 65/3 (2022) 329-339.

[11] The term IA was coined at the Dartmouth Conference at the College of the same name in Hanover, New Hampshire, in the summer of 1956. Russell and Norving indicate four types of AI definitions. RUSSELL Stuart J. - NORVING Peter, *Artificial Intelligence: A Modern Approach*, 3rd ed., Prentice Hall, Upper Saddle River (NJ) 2010. In general, we can define AI as "any device or computer program capable of performing tasks normally associated with intelligent beings, such as learning, reasoning, perception, problem solving, language. About its historical evolution: NILSSON Nils J., *The Quest for Artificial Intelligence: A History of Ideas and Achievements*, Cambridge University Press, Cambridge 2010

[12] Cf. SANTAELLA BRAGA Maria Lúcia (ed.), *Inteligência artificial & redes sociais*, EDUC, São Paulo, 2019; LEE Kai-Fu - ROY Élise, *I.A. la plus grande mutation de l'histoire : Qui dominera l 'I.A. dominera le monde*, J'ai lu, Paris, 2021.

1.2. A qualitative leap: Generative AI

The launch of ChatGPT, on November 30, 2022, marked a significant advancement in generative AI, being capable of "producing syntactically and semantically coherent texts."[13]

ChatGPT is a conversational application based on a large language model (LLM) of the "GPT" type (Generative Pretrained Transformer). "It is not intended to give precise and accurate answers", but rather to engage in conversation and entertain its users. Although it handles language proficiently and generates fluent texts, its responses may not always be objective or reliable. It utilizes advanced machine learning algorithms (Deep learning) based on human feedback ("Reinforcement Learning from Human Feedback," RLHF). This enables it to develop "behaviors and capabilities not explicitly programmed by developers."[14]

Following ChatGPT, many other similar applications quickly emerged on the market, including those capable of generating text (Copilot, Gemini, Perplexity), images (Dall-E, Midjourney, Leonardo, Jasper), audio and video (Synthesia, Fliki, Pictory), among others.

This rapid evolution "is radically affecting the world of information and communication, and through it, certain foundations of life in society" (*WCD* 2024). Indeed, it is becoming increasingly challenging to distinguish between computation and thought. In this new cultural environment, how can we achieve wisdom and "a fully human communication"? Can we feel safe with AI systems that can reprogram themselves?

2. Exciting opportunities and grave risks

Generative artificial intelligence has captured the attention of the international community due to its "exciting opportunities and grave risks" (*WDP* 2024,1), along with its rapid adoption. Launched on November 30, 2022, ChatGPT reached 100 million monthly active users within just two months.

---

[13] *WDP* 2024, 3. Cf. Gacovski Zoran, *Natural Language processing*, Arcler Press, Burlington (ON) 2021.

[14] Da Silva Gonçalvez Nuno, «Intelligenze artificiali e intelligenze incarnate: quale frontiera? Intervista a Paolo Benanti,» in *La Civiltà Cattolica* 4164 (Dec. 16, 2023) 572-586.

By September 2023, it had surpassed 1.5 billion monthly visits, becoming "the fastest-growing consumer application in history."[15]

On, March 22, 2023, over 1,000 technology experts, researchers, and investors signed an open letter warning about the "profound risks to society" posed by giant AI systems. The letter called for a six-month pause in their development to better evaluate and address these risks. Prominent signatories included high-level specialists like Yoshua Bengio,[16] and entrepreneurs like Elon Musk, co-founder of OpenAI, and Steve Wozniak, co-founder of Apple.[17] This growing concern about AI systems has led to limiting some of their potentialities and partially "taming" the expressiveness of their interactions.[18]

Stephen Hawking once remarked that "successful A.I. 'would be the biggest event in human history. Unfortunately, it might also be the last', unless we learn how to avoid the risks."[19] Indeed, "humans, who are limited by slow biological evolution, couldn't compete, and would be superseded."[20]

2.1. Autonomous systems acting dangerously

AI is increasingly integrated into systems capable of acting autonomously in complex situations. These machines, programmed with human-defined objectives, can independently determine the most effective means to achieve these goals, potentially fostering the belief that the end justifies the means, which contradicts a fundamental ethical principle.

For example, self-driving vehicles are sometimes advertised as capable of making decisions involving value judgments. Such decisions require dis-

---

[15] VARA Vauhini, «One Year In and ChatGPT Already Has Us Doing Its Bidding,» in *NYT* (Dec. 31, 2023) 5, sec. SR. The next fastest growing consumer application had been TikTok, which took 9 months to reach that figure.

[16] Renowned as one of the "fathers" of AI for his contribution to the development of deep learning and neural networks. Cf. BENGIO Yoshua, *Learning deep architectures for AI,* Now Pub., Hanover (Mass) 2009.

[17] METZ Cade – SCHMIDT Gregory, «Tech leaders urge a pause in A.I., citing 'profound risks to society',» in *NYT* (March 30, 2023) 5, sec. 5.

[18] ROOSE Kevin, «My A.I. Homewrecker Has Turned Into an A.I. Office Drudge,» in *NYT* (Feb. 15, 2024) 1, sec. A.

[19] BILTON Nick, «Artificial Intelligence as a Threat,» in *NYT* (Nov. 6, 2014) 2, sec. E.

[20] CELLAN-JONES Rory, «Stephen Hawking warns artificial intelligence could end mankind,» (Dec. 2, 2015), in https://www.bbc.com/news/technology-30290540.

cernment beyond the reach of current machines.[21] To enhance their marketability, manufacturers might program these vehicles to prioritize the safety of the driver, even at the expense of pedestrian lives. The trolley[22] and helmet[23] dilemmas illustrate the ethical challenges involved.

More unsettling are military robots known as "Lethal Autonomous Weapon Systems" (LAWS),[24] which could exceed their programmed functions.[25] For example, it was reported that, on March 27, 2020, a Turkish drone (STM Kargu-2) autonomously decided to attack Haftar's enemy troops in the armed conflict in Libya,[26] without any human intervention and going beyond foreseeable risks.[27] Recognizing such dangers, the European Parliament had already adopted a resolution (2018/2752) in 2018, urging the international ban of LAWS.[28]

---

[21] It is not possible to embed algorithms into those vehicles to "automate complex ethical decision making." Millar Jason, «Ethics settings for autonomous vehicles,» in Lin Patrick - Jenkins Ryan – Abney Keith, (ed.), *Robot ethics 2.0. From autonomous cars to artificial intelligence*, Oxford UP, New York 2020 20-34, here 22.

[22] This dilemma was developed by philosopher Philippa Foot in 1967 and adapted by Judith Jarvis Thomson in 1985. Cf. D'Olimpio Laura, «The trolley dilemma: would you kill one person to save five?» (June 3, 2016), in *Internet*: https://theconversation.com/the-trolley-dilemma-would-you-kill-one-person-to-save-five-57111.

[23] *Internet*: https://www.youtube.com/watch?v=ixIoDYVfKA0&t=8s; cf. Markoff John, «Should Your Driverless Car Hit a Pedestrian if It Would Save Your Life?,» in *NYT* (June 24, 2016) 2, sec. B.; Shariff Azim – Rahwan Lyad – Bonnefon Jean-François, «Whose life should your car save?,» in *NYT* (Nov. 6, 2016) 9, sec. SR.

[24] LAWS are often called "killer robots." Vilmer Jean-B.J. «Terminator ethics: Should we ban 'killer robots'?,» in Otto Philipp – Gräf Eike, *3th1cs. A reinvention of ethics in the digital age?*, [*Otto*], iRights media, Berlin 2017, 98-113, here 98. In a science fiction scenario, one could think of absolutely autonomous LAWS, as designed and programmed by other machines. Cf. *Otto* 100.

[25] "They may at some point perform unforeseen actions, escaping the predicted area of evolution and thus contradicting the objective set by a responsible human agent." Jurkovic Ivan (bishop), «Statement to the 2017 group of Governmental experts on LAWS» (Geneva Nov. 13, 2017), in *Internet*: https://nuntiusge.org/wp-content/uploads/2020/05/20171113.pdf

[26] Cramer Maria, «A.I. Drone May Have Acted on Its Own in Attack in Libya,» in *NYT* (June 4, 2021) 8, sec. A.

[27] Lambert Dominique, «Autonomous weapons and cyberconflicts. How Christian ethics can deal with war's new face?,» in *Angelicum* 97/1 (2020) 93-105, here 95.

[28] Blix Hans, *A farewell to wars. The growing restraints on the interstate use of force*, Cambrigde UP, Cambridge 2023, 128; cf. https://www.europarl.europa.eu/doceo/document/TA-8-2018-0341_EN.html

In May 2023, at the Royal Aeronautical Society in London, U.S. Air Force Colonel Tucker "Cinco" Hamilton disclosed that, in a simulation, an AI-driven drone eliminated its operator because it hindered the drone from fulfilling its objectives. Although this news was promptly refuted, it sparked global alarm,[29] underscoring the apprehension that these machines evoke in the collective imagination.

Cinema has extensively explored the feared rebellion of machines, with classics like "2001: A Space Odyssey", directed by Stanley Kubrick and released in April 1968, where the computer HAL 9000 rebels against the space mission crew. Other films exploring similar themes include Blade Runner (1982), War Games (1983), RoboCop (1987), Terminator (1984), AI (2001), Matrix (1999), I Robot (2004), and Her (2013).

2.2. Cognitive pollution and Reality alteration

"Whoever becomes the leader in artificial intelligence will become the ruler of the world," Vladimir Putin declared in 2017,[30] shortly after his country was accused of interfering in the 2016 US presidential election.[31] AI is playing a significant role in conflicts such as those in Ukraine[32] and Gaza[33]. NATO acknowledges that it is reorienting its military strategy to achieve cognitive superiority. Consequently, the battlefield extends into the human mind.

---

[29] DAVIS Charles R. – SQUIRE Paul, «Air force colonel backtracks over his warning about how AI could go rogue and kill its human operators,» in *Internet:* https://www.businessinsider.com/ai-powered-drone-tried-killing-its-operator-in-military-simulation-2023-6?r=US&IR=T

[30] SCHOENI Daniel - ſVESTNER Tobias, *Ethical Dilemmas in the Global Defense Industry,* Oxford UP, New York 2023, 128.

[31] JAMIESON Kathleen H., *Cyberwar. How Russian hackers and trolls helped elect a president. What we don't, can't, and do know*, Oxford UP, Oxford 2020; DAVIS Elizabeth V.W., *Shadow warfare. Cyberwar policy in the United States, Russia, and China*, Rowman & Littlefield, London 2021.

[32] Cf. WAGSTAFF Jeremy, «Un nuevo modelo de ejército,» in *Internet:* https://www.imf.org/es/Publications/fandd/issues/2023/12/Case-Studies-New-model-army-Jeremy-Wagstaff (accessed: March 7, 2024).

[33] The Israeli military says it's using an AI system, named 'the Gospel,' to select many of the targets in real-time. STEHR Nico, *Understanding society and Knowledge*, Edward Elgar, Northampton (Mass) 2023, 41; cf. https://www.theguardian.com/world/2023/dec/01/the-gospel-how-israel-uses-ai-to-select-bombing-targets.

This involves not only acquiring superior knowledge,[34] but also manipulating minds and undermining the social cohesion of adversaries' countries.

Historically, tactics like terrorizing and discrediting were used to impose one's culture, language, and religion on enemies. Now, with AI, it is easier to bombard adversaries with false but plausible and persuasive information. Indeed, AI can be a formidable instrument of "cognitive pollution" and reality distortion (*WCD* 2024), raising concerns about its potential misuse by criminals and terrorists.[35]

Media and AI are not merely "lifeless instruments requiring proper use."[36] Their neutrality is only apparent (*WCD* 2014), as they carry ethical and political dimensions[37] closely tied to the goals and interests of their owners. This also depends on how developers select algorithms, input data, and design user interactions.

Other technologies, often considered neutral, can also cause unforeseen consequences due to their design and implementation. This is evident in fields like architecture and urban planning. For instance, Lewis Mumford notes that "many of the overpasses on Long Island, New York, were deliberately designed as extraordinarily low to keep out poor people and blacks, who normally use buses."[38] This example illustrates how design choices can reflect and enforce social biases.

---

[34] "Cognitive superiority, in a NATO context, could thus be defined as an ability to excel in understanding and decision-making." Paulauskas Kestutis, «Why cognitive superiority is an imperative,» in *NATO Review* (Feb. 6, 2024) (In *Internet*: https://www.nato.int/docu/review/articles/2024/02/06/why-cognitive-superiority-is-an-imperative/index.html); Cf. Hartley Dean S. – Jobson Kenneth O., *Cognitive superiority. Information to Power*, Springer, Cham 2021, 223-228.

[35] Cf. Cronin Audrey K., *Power to the People: How Open Technological Innovation is Arming Tomorrow's Terrorists*, Oxford UP, New York 2020.

[36] Pontifical Council for Social Communications (PCSC), «An appeal to all contemplative religious» (June 3, 1973), in *Internet*: https://www.vatican.va/roman_curia/pontifical_councils/pccs/documents/rc_pc_pccs_doc_03061973_contemplative-religious_en.html (accessed: Feb. 6, 2024).

[37] Mumford Lewis, «Authoritarian and Democratic Technics,» in *Technology and Culture* 5/1 (1964) 1-8.

[38] Winner Langdon, «Do Artifacts Have Politics?,» in *Daedalus*, 109/01 (Jan. 01, 1980), 121-136, here 123-124 (https://www.jstor.org/stable/20024652). It is crucial to pay attention "to the meaning of the designs and arrangements of our artifacts." *Ibid.* 125.

> "Every technology brings about a change in the relationship with the world, facilitating certain aspects of that relationship and complicating others. This, precisely, is not neutral since everything depends on which aspects of life are facilitated and which are hindered."[39]

The encyclical *Laudato si'* has already affirmed that the media respond to the commercial interests of the multinational corporations that control them and, therefore, promote the same capitalist model of development that has caused the current socio-environmental crisis.[40] They influence not only our lifestyle, but also our symbolic horizon and the world we inhabit.

2.3. Everything reduced to mere data

Digital technologies tend to reduce reality to what a computer can process, neglecting the most fundamental dimensions of human experience. According to Jean Baudrillard, the new media are creating autistic subjects who abandon the symbolic and replace it with self-referential signs and images.[41] Peter Brooks adds that "the metaphor is a language that the computer cannot process, but if metaphors were lacking, the prophets, priests, and theologians would be mute."[42]

> "Their great possibilities for good are accompanied by the risk of turning everything into abstract calculations that reduce individuals to data, thinking to a mechanical process, experience to isolated cases, goodness to profit, and,

---

[39] "Cada tecnología trae consigo un cambio en la relación con el mundo, una facilitación de ciertos aspectos de aquella relación y una complicación de otros. Esto, precisamente, no es neutral, ya que todo depende de cuáles aspectos de la vida son facilitados y cuáles son obstaculizados." LYNCH Jonah, *El perfume de los limones. Tecnología y relaciones humanas en la era de Facebook,* San Pablo, Bogotá 2013, 47.

[40] Cf. FRANCIS, «*Laudato si'*. Encyclical letter» (May 24, 2015), [*LS*], n. 47, in *AAS* 107 (2015) 847-945.

[41] BAUDRILLARD Jean, *Il delitto perfetto. La televisione ha ucciso la realtà ?,* Raffaello Cortina, Milano 1996, 153. On the enormous impact of AI on society: FLORIDI Luciano, *The Fourth Revolution: How the Infosphere is Reshaping Human Reality*, Oxford University Press, Oxford 2014; EASA Khalid, *Mans Relationships with Technology An Analysis of Marshall McLuhan's "Understanding Media. The Extensions of Man*", Ebook, GRIN, München 2019

[42] "La metafora è un linguaggio di fronte al quale il computer è sordo. Senza metafora invece muti sono i profeti, i sacerdoti, i teologi". BROOKS Peter, *La comunicazione della fede nell'età dei media* elettronici, ElleDiCi, Leumann 1987, 44.

> above all, a denial of the uniqueness of each individual and his or her story. The concreteness of reality dissolves in a flurry of statistical data" (*WCD* 2024).

The widespread use of AI technologies can turn them into arbiters of truth, deciding what is important for us and conditioning our way of thinking.[43] When misused, AI poses a serious threat to human dignity. Indeed, by processing everything coldly, as binary code, AI can jeopardize our admiration for the mystery of the person, exacerbate selfish individualism, and "set aside the essential human values of compassion, mercy and forgiveness" (*WDP* 2024, 5). Having lost respect for personal privacy, "systemic errors can easily multiply," exposing individuals "to forms of bias and discrimination" (*Ibid*).

The Pope warns that, without our knowledge, AI technologies collect and organize data "for commercial or political purposes", "thus limiting our conscious exercise of freedom" (*WDP* 2024, 2). Once personal information is inserted into their gigantic databases, they can "eliminate the possibility of an individual changing and leaving his or her past behind" (*WDP* 2024, 5).

The danger to privacy and to social peace is exacerbated by the AI's self-learning algorithms driving social networks, which prioritize provocative, polemic, and polarizing messages to boost audience engagement and generate greater profits. These algorithms also favor simplistic and direct fake news over truth, which is usually more complex and less impactful.[44]

2.4. Need for ethics

Pope Francis cautions that "we cannot presume a priori" that the development of AI "will make a beneficial contribution to the future of humanity." It will be positive only if we use it responsibly and respect "fundamental

---

[43] Cf. Eubanks Virginia, *Automating inequality: How high-tech tools profile, police and punish the Poor*, St Martin's Press, New York 2018, 11.

[44] Twitter and Facebook, and social media are not designed for thoughtful conversation. The more incendiary the post, the more widely the platforms spread it. Cf. Fisher Max, *The Chaos Machine: The inside story of how Social Media rewired our minds and our world*, Quercus, London 2023. Cf. Tufekci Zeynep. *Twitter and Tear Gas: The Power and Fragility of Networked Protest*, Yale University Press, New Haven, 2017; Pariser Eli. *The Filter Bubble: What the Internet Is Hiding from You*, Penguin Press, New York 2011. Netflix documentary «The Social Dilemma» (directed by Jeff Orlowski, Exposure Labs, 2020) highlights how social media is designed to engage the viewer through sensational and incendiary content, rather than promoting serene and thoughtful debate.

human values," starting with "the intrinsic dignity of each person and fraternity" (*WDP* 2024, 2).

The Pope's approach to AI is critical, but not pessimistic. He urges us "to set aside catastrophic predictions" while appealing "to the international community to work together to adopt a binding international treaty regulating the development and use of artificial intelligence in its various forms."[45] For example, AI poses grave risks for "privacy, data ownership and intellectual property" (*WDP* 2024, 3).

Moreover, the Pope emphasizes that "regulation is, of itself, not sufficient" (*WDP* 2024, 8) and must be complemented by good ethical and anthropological formation. Without ethics, our age will be "rich in technology and poor in humanity" (*WCD* 2024). Therefore, it is necessary "to establish bodies charged with examining the ethical issues arising in this field" (*WDP* 2024, 3) and protecting human rights.

3. Humanism of fraternity

In contrast to the technocratic paradigm and algorithms that promote hate and confrontation, the Pope proposes a humanism of fraternity inspired by Francis of Assisi. Indeed, "the inherent dignity of each human being and the fraternity that binds us together as members of the one human family must undergird the development of new technologies" (*WDP* 2024, 2).

In a world where "indifference towards our neighbors" prevails,[46] the Pope advocates for fraternity and universal solidarity "to create a different culture, in which we resolve our conflicts and care for one another."[47]

The Second Vatican Council had already taught that "the beginning, the subject and the goal of all social institutions is and must be the human person."[48] He is an intrinsically social being, who "cannot fully find himself

---

[45] *WCD* 2024. Cf. OECD, «Recommendation of the Council on AI,» (May 22, 2019), in *Internet*: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449; EUROPEAN COMMISSION, «Ethics guidelines for trustworthy AI,» (April 8, 2019), in *Internet:* https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai.

[46] FRANCIS, «Address to the members of the diplomatic corps accredited to the Holy See» (Jan. 11, 2016), in *OR* 7 (Jan. 11/12, 2016) 4-5.

[47] FRANCIS, «*Fratelli tutti.* Encyclical letter» (Oct. 3, 2020), [*FT*], n. 57, in *AAS* 112 (2020) 969-1074.

[48] SECOND VATICAN COUNCIL, «*Gaudium et spes.* Pastoral Constitution» (Dec. 7, 1965), [*GS*], n. 25, in *AAS* 58 (1966) 1025-1120.

except through a sincere gift of himself" (*GS* 24). Thus, human dignity, fraternity, and care for the environment are the pillars of the humanism that should guide the development of AI.

This humanism of fraternity, which embraces creatures as sisters, finds a beautiful expression in the Canticle of the Creatures of St. Francis. The Saint of Assisi recognizes that "no human is worthy to mention Your name."[49] Therefore, "*with*" all creatures (*CtC* 3) and "*through*" them (*CtC* 5-9), Francis praises the Creator.

3.1. AI and integral development

In our materialistic society, techno-scientific development is often equated with integral progress, overlooking the fact that true progress occurs only when technical advancements also enhance freedom, equity, happiness, and fraternal communion. Authentic development is always intertwined with the common good, a criterion that is not always met by technological innovations. For example, the innovation of the atomic bomb cannot be said to have served the common good.

For development to be integral[50], it must encompass three fundamental dimensions: material, social, and spiritual (or expressive). The first dimension pertains to overall material or acquisitive wealth, typically measured by the Gross Domestic Product (GDP).[51]

The social dimension refers to the level of integration and solidarity among different social groups. AI technologies " can never count as true progress" if they "do not lead to an improvement in the quality of life of all humanity, but on the contrary aggravate inequalities and conflicts" (*WDP* 2024, 2). This is why the Pope urges us "to forestall harmful, discriminatory and socially unjust effects of the use of systems of artificial intelligence" (*WCD* 2024). For example, V. Eubanks notes that, in the United States, the

---

[49] Francis of Assisi, «The Canticle of the Creatures» [*CtC*], n. 2, in Armstrong Regis J – Hellmann J.A.Wayne – Short William J. (ed.), *Francis of Assisi: Early Documents,* New City Press, New York (NY) 2008, I, 113-114.

[50] On integral development: Schumacher E.F., *Small is beautiful die Rückkehr zum menschlichen Mass*, Oekom, München 2013; Schieffer Alexander - Lessem Ronnie, *Integral Development: Realising the Transformative Potential of Individuals, Organisations and Societies*, Gower, Farnham, Surrey (UK) 2014.

[51] Cf. Aguilar González Bernardo, *Paradigmas económicos y desarrollo sostenible. La economía al servicio de la conservación*, EUNED, San José 2002, 37.

automation of welfare services is increasing inequalities.[52] AI can further exacerbate these social and economic gaps at a global level, as it is controlled by just a few profit-driven multinationals.

The spiritual (or "expressive"[53]) dimension is measured by the so-called "happiness index." Without relational goods, there is no happiness. Economic goods are truly valuable when they contribute to a good life, i.e. when they make public happiness possible. In this sense, the social impact of AI technologies, which are replacing many qualified jobs, must be addressed.[54] Full employment must be ensured in other ways, as it is crucial "for the economic well-being of individuals" (*WDP* 2024, 5).

3.2. Other social implications of the use of AI

The Church teaches that science and technology assist us in meeting fundamental needs and overcoming adversities that create discord and tension. Pope Paul VI declared that "development is the new name for peace."[55]

AI is causing profound changes in all areas of society: "communications, public administration, education, consumption, personal interactions and countless other aspects" (*WDP* 2024, 2). It promises, for example, "a revolution in processes of accumulating, organizing and confirming data," as well as "major innovations in agriculture, education and culture" (*WDP* 2024, 6). However, AI puts in human hands some possibilities "that may pose a risk to our survival and endanger our common home" (*WDP* 2024, 1).

The Pope highlights the necessity of incorporating human sciences and theology into a crucial "cross-disciplinary dialogue aimed at an ethical development of algorithms – an algor-ethics –" (*WDP* 2024, 6). These algorithms should prioritize transparency by revealing their sources, objectives, and criteria for selection and action. Critical decisions should not be left to machines, especially in economic, political, and military fields.[56]

---

[52] "Automated eligibility systems discourage them from claiming public resources that they need to survive and thrive […]. Predictive models and algotithms tag them as risky investments." EUBANKS Virginia, *Automating inequality*, 11.

[53] Cf. ARISTOTLE, *Nicomachean ethics*, Chicago UP, Chicago 2011.

[54] FREY Carl B.– OSBORNE Michael A., «The Future of Employment: How Susceptible Are Jobs to Computerisation?,» in *Technological Forecasting and Social Change* 114 (2017) 254-280.

[55] PAUL VI, «*Populorum progressio*. Encyclical letter» (March 26, 1967), [*PP*], n. 87, in *AAS* 59 (1967) 257-299.

[56] Per esempio nel campo della strategia di investimento, di quella politica e di quella militare. Cf. TEGMARK Max, *Vita 3.0. Essere umani nell'era dell'intelligenza artificiale*,

3.3. Unity in diversity

We must discern how AI can faithfully represent the complexity of reality, maintaining pluralism and preventing inequalities and injustices. Currently, social networks often encourage a "feverish exchange of opinions" that isn't true dialogue but "merely parallel monologues" (*FT* 200), sometimes leading to verbal violence.[57] We must "sit down and listen to others", pay attention to them, as St. Francis did (*FT* 48).

It's crucial to avoid AI misuse that "level our world" (*FT* 52), stifling pluralism and "shielding people from debate" (*FT* 45). There are indications that we're heading in the wrong direction. There is a risk that sources may be reduced to just one, "thus fostering a single approach, developed on the basis of an algorithm" (*WCD* 2024). Already, AI is being "deployed in campaigns of disinformation" (*WDP* 2024, 2-3) aimed at manipulating public opinion and influence elections.[58]

Some authors argue that AI functions as an authoritarian, centralizing tool,[59] albeit with the added advantage that "through mechanization, automation, and cybernetic direction"[60] it has managed to neutralize the social resistance encountered in other times. Consequently, AI can enforce uniformity of thought and mass surveillance more effectively. It also predicts behaviors, habits, and desires, thereby compromising our freedom in decision-making and altering our understanding of economic activity.[61] These

---

Raffaello Cortina, Milano 2017; Taddeo Mariarosaria - Floridi Luciano. «How AI Can Be a Force for Good,» in *Science* 361/6404 (2018) 751-752; Schneier Bruce, *Click Here to Kill Everybody: Security and Survival in a Hyper-connected World*, W.W. Norton & Company, New York 2019.

[57] *FT* 46. "It becomes easier to discredit and insult opponents." *FT* 201. Cf. Buell Emmett H. - Sigelman Lee, *Attack Politics: Negativity in Presidential Campaigns Since 1960*, 2nd ed., University Press of Kansas, Lawrence 2009; Mutz Diana C. *In-Your-Face Politics: The Consequences of Uncivil Media*, eBook, Princeton University Press, 2015.

[58] Gaggi Massimo, «Le falsità intelligenti che minacciano il mondo,» in *Corriere.it* (Oct. 12, 2023), (*Internet:* https://www.corriere.it/opinioni/23_ottobre_12/falsita-intelligenti-che-minacciano-mondo-5bd02be6-6927-11ee-9c9c-ce3429611a2d.shtml).

[59] "From late neolithic times, […] two technologies have recurrently existed side by side: one authoritarian, the other democratic, the first system-centered, immensely powerful, but inherently unstable, the other man-centered, relatively weak, but resourceful and durable." Mumford Lewis, «Authoritarian and Democratic Technics,» 2.

[60] Mumford Lewis, «Authoritarian and Democratic Technics,» 5.

[61] Agrawal Ajay – Gans Joshua – Goldfarb Avi, *Prediction Machines. The simple economics of Artificial Intelligence*, Harvard Business Review Press, Boston 2022.

authors contend that AI is eroding freedom, justice, and pluralism, steering us swiftly towards a "Big Brother" dictatorship.[62]

Conclusion

"Do not be afraid of new technologies!"[63] John Paul II declared. These "wonderful technological discoveries"[64] are "gifts of God."[65] The Church "would feel guilty before the Lord if she did not utilize them"[66] and if she did not try to evangelize the culture they create.

These same statements can now be applied to AI, which offers "exciting opportunities" (*WDP* 2024, 1). The Pope, quoting Romano Guardini, urges us "not to reject 'the new'" while being "sensitivity to everything that is destructive and inhumane therein."[67]

The serious dangers posed by AI shouldn't lead to its rejection but to promote its responsible use. We must "confront and interpret the newness of our time" (*WCD* 2024), collaborating with the whole human family in the global process of discernment. It is in our hands to ensure that these algorithms promote a fuller human life. Indeed, "the purpose and the meaning" of AI operations depend on us (*WDP* 2024, 4).

Human dignity should always be the fundamental value, prioritizing human well-being over technological progress This requires promoting the common good and fundamental values, such as "inclusion, transparency, security, equity, privacy and accountability" (*WDP* 2024, 2).

"It is up to us to decide whether we will become fodder for algorithms or will nourish our hearts with that freedom without which we cannot grow in wisdom" (*WCD* 2024).

---

62 Cf. ORWELL George, *1984*, Signet Book, New York 1953.

63 JOHN PAUL II, «*Il Rapido Sviluppo.* Apostolic letter» (Jan. 24, 2005) [*RS*], n. 14, in *AAS* 97 (2005) 265-274.

64 SECOND VATICAN COUNCIL, «*Inter mirifica*. Decree» (Dec. 4, 1963), n. 1, in *AAS* 56 (1964) 145-157.

65 PCSC, «*Communio et Progressio.* Pastoral instruction» (May 23, 1971), [CP], n. 2, in *AAS* 63 (1971) 593-656; cf. ID., «Ethics in communications» (June 4, 2000), [ECS], n. 4, in *OR*, (May 31, 2000), suppl., insert tabloid, p. I-IV; JOHN PAUL II, «*Redemptoris misio.* Encyclical letter» (Dec. 7, 1990), [*RM*], n. 37, in *AAS* 83 (1991) 249-340. "One of the greatest blessings of our age." *WCD* 1973.

66 PAUL VI, «*Evangelii nuntiandi.* Apostolic exhortation» (Dec. 8, 1975), [*EN*], n. 45, in *AAS* 58 (1976) 5-76.

67 GUARDINI Romano, «Letters from Lake Como,» quoted in *WCD* 2024.

Bibliografía

Second Vatican Council, «*Gaudium et spes*. Pastoral Constitution» (Dec. 7, 1965), in *AAS* 58 (1966) 1025-1120.

Second Vatican Council, «*Inter mirifica*. Decree» (Dec. 4, 1963), in *AAS* 56 (1964) 145-157.

Paul VI, «*Populorum progressio*. Encyclical letter» (March 26, 1967), in *AAS* 59 (1967) 257-299.

Paul VI, «*Evangelii nuntiandi*. Apostolic exhortation» (Dec. 8, 1975), in *AAS* 58 (1976) 5-76.

John Paul II, «*Redemptoris misio*. Encyclical letter» (Dec. 7, 1990), in *AAS* 83 (1991) 249-340.

John Paul II, «*Il Rapido Sviluppo*. Apostolic letter» (Jan. 24, 2005), in *AAS* 97 (2005) 265-274.

Francis, «*Laudato si'*. Encyclical letter» (May 24, 2015), in *AAS* 107 (2015) 847-945.

Francis, «Address to the members of the diplomatic corps accredited to the Holy See» (Jan. 11, 2016), in *OR* 7 (Jan. 11/12, 2016) 4-5.

Francis, «*Fratelli tutti*. Encyclical letter» (Oct. 3, 2020), in *AAS* 112 (2020) 969-1074.

Francis, «Message for the 58th World Communications Day» (Jan. 24, 2024), in *OR* 19 (Jan. 24, 2024) 8.

Francis, «Message for the 57th Jornada Mundial de la Paz» (Jan. 1, 2024), in *OR* 286 (Dec. 14, 2023) 2-3.

PCSC, «*Communio et Progressio*. Pastoral instruction» (May 23, 1971), in *AAS* 63 (1971) 593-656.

PCSC, «An appeal to all contemplative religious» (June 3, 1973), in *Internet*: https://www.vatican.va/roman_curia/pontifical_councils/PCSC/documents/rc_pc_PCSC_doc_03061973_contemplative-religious_en.html.

PCSC, «Ethics in communications» (June 4, 2000), in *OR* (May 31, 2000), suppl., insert tabloid, p. I-IV.

Agrawal, Ajay – Gans, Joshua – Goldfarb, Avi, *Prediction Machines. The simple economics of Artificial Intelligence*, Harvard Business Review Press, Boston 2022.

Aguilar González, Bernardo, *Paradigmas económicos y desarrollo sostenible. La economía al servicio de la conservación*, Euned, San José 2002.

Aristóteles, Ética Nicomaquea, Colihue, Buenos Aires 2007.

Buell, Emmett H. - Sigelman, Lee, *Attack Politics: Negativity in Presidential Campaigns Since 1960*, 2nd ed., Univ. Press of Kansas, Lawrence 2009.

Baudrillard, Jean, *Il delitto perfetto. La televisione ha ucciso la realtà?,* Milano 1996.

Bengio, Yoshua, *Learning deep architectures for AI,* Now Pub., Hanover (Mass) 2009.

Bilton, Nick, «Artificial Intelligence as a Threat», in *NYT* (6.11.2014) 2, sec. E.

Blix, Hans, *A farewell to wars. The growing restraints on the interstate use of force*, Cambrigde UP, Cambridge 2023.

Brooks, Peter, *La comunicazione della fede nell'età dei media elettronici,* Leuman 1987.

Carbajo Núñez, M., «The Lord Gave Me Brothers and Sisters. Francis of Assisi, Inspirer of the Encyclical Fratelli Tutti». Carthaginensia 75 (2023). https://doi.org/10.62217/carth.445.

Carbajo Núñez, M., «"So that they might have life". The Later Rule of Saint Francis», Carthaginensia, 77 (2024), pp. 25–50. doi: 10.62217/carth.568.

Cellan-Jones, Rory, «Stephen Hawking warns artificial intelligence could end mankind», (2.12.2015), in https://www.bbc.com/news/technology-30290540.

Cramer, Maria, «A.I. Drone May Have Acted on Its Own in Attack in Libya», in *NYT* (4.06.2021) 8, sec. A.

Cronin, Audrey K., *Power to the People: How Open Technological Innovation is Arming Tomorrow's Terrorists*, Oxford UP, New York 2020.

D'Olimpio, Laura, «The trolley dilemma: would you kill one person to save five?» (3.06.2016), in *Internet*: https://theconversation.com/the-trolley-dilemma-would-you-kill-one-person-to-save-five-57111.

Da Silva Gonçalvez, Nuno, «Intelligenze artificiali e intelligenze incarnate: quale frontiera? Intervista a Paolo Benanti», in *La Civiltà Cattolica* 4164 (16.12.2023) 572-586.

Davis, Charles R. – Squire, Paul, «Air force colonel backtracks over his warning about how AI could go rogue and kill its human operators», in *Internet:* https://www.businessinsider.com/ai-powered-drone-tried-killing-its-operator-in-military-simulation-2023-6?r=US&IR=T

Davis, Elizabeth V.W., *Shadow warfare. Cyberwar policy in the United States, Russia, and China*, Rowman & Littlefield, London 2021.

Easam Khalid, *Mans Relationships with Technology An Analysis of Marshall McLuhan's "Understanding Media. The Extensions of Man*", Ebook, GRIN, München 2019.

Eubanksm Virginia, *Automating inequality: How high-tech tools profile, police and punish the Poor*, St Martin's Press, New York 2018.

European Commission, «Ethics guidelines for trustworthy AI», (8.04.2019) (https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai).

Fisher, Max, *The Chaos Machine: The inside story of how Social Media rewired our minds and our world*, Quercus, London 2023.

Floridi, Luciano, *The Fourth Revolution: How the Infosphere is Reshaping Human Reality*, Oxford UP, Oxford 2014.

Frey, Carl B. – Osborne Michael A., «The Future of Employment: How Susceptible Are Jobs to Computerisation?», in *Technological Forecasting and Social Change* 114 (2017) 254-280.

Gacovski, Zoran, *Natural Language processing*, Arcler Press, Burlington (ON) 2021.

Gaggi Massimo, «Le falsità intelligenti che minacciano il mondo», in *Corriere.it* (12.10.2023), (en *Internet:* https://www.corriere.it/opinioni/23_ottobre_12/falsita-intelligenti-che-minacciano-mondo-5bd02be6-6927-11ee-9c9c-ce3429611a2d.shtml).

Gisotti, Alessandro, «Entrevista a Benanti: «La inteligencia artificial al servicio del bien común», in *Vatican News*, (12.12.2023), (https://www.vaticannews.va/es/mundo/news/2023-12/benanti-la-inteligencia-artificial-al-servicio-del-bien-comun.html).

Hartley, Dean S. – Jobson, Kenneth O., *Cognitive superiority. Information to Power*, Springer, Cham 2021.

Holmström, Jonny, «From AI to digital transformation: The AI readiness framework», in *Business Horizons* 65/3 (2022) 329-339.

Jamieson, Kathleen H., *Cyberwar. How Russian hackers and trolls helped elect a president. What we don't, can't, and do know*, Oxford UP, Oxford 2020.

Johnsen, Maria, *The future of Artificial intelligence in digital marketing. The next big technological break*, CreateSpace, US 2021.

Jurkovic, Ivan (bishop), «Statement to the 2017 group of Governmental experts on LAWS» (Geneva 13.11.2017), in *Internet*: https://nuntiusge.org/wp-content/uploads/2020/05/20171113.pdf

Lambert, Dominique, «Autonomous weapons and cyberconflicts. How Christian ethics can deal with war's new face?», in *Angelicum* 97/1 (2020) 93-105.

Lee, Kai-Fu - Roy Élise, *I.A. la plus grande mutation de l'histoire : Qui dominera l 'I.A. dominera le monde*, J'ai lu, Paris, 2021.

Lin, Patrick - Jenkins Ryan – Abney Keith, (ed.), *Robot ethics 2.0. From autonomous cars to artificial intelligence*, Oxford UP, New York 2020.

Lynch, Jonah, *El perfume de los limones. Tecnología y relaciones humanas en la era de Facebook,* San Pablo, Bogotá 2013.

Markoff, John, «Should Your Driverless Car Hit a Pedestrian if It Would Save Your Life?», in *NYT* (24.06.2016) 2, sec. B.

Metz, Cade – Schmidt Gregory, «Tech leaders urge a pause in A.I., citing 'profound risks to society'», in *NYT* (30.03.2023) 5, sec. 5.

Millar, J., «Ethics settings for autonomous vehicles», in Lin Patrick - Jenkins Ryan – Abney Keith, (ed.), *Robot ethics 2.0. From autonomous cars to artificial intelligence*, Oxford UP, New York 2020, 20-34.

Mokyr, Joel, *The Lever of Riches: Technological Creativity and Economic Progress*, Oxford UP, New York 1990.

Mutz, Diana C., *In-Your-Face Politics: The Consequences of Uncivil Media*, eBook, Princeton UP, 2015.

Mumford, Lewis, «Authoritarian and Democratic Technics», in *Technology and Culture* 5/1 (1964) 1-8.

Nilsson, Nils J., *The Quest for Artificial Intelligence: A History of Ideas and Achievements*, Cambridge UP, Cambridge 2010.

OECD, «Recommendation of the Council on AI», (22.05.2019), in *Internet*: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449.

Orwell, George, *1984*, Signet Book, New York 1953.

Otto, Philipp – Gräf Eike, *3th1cs. A reinvention of ethics in the digital age?*, iRights media, Berlin 2017.

Paglia, Vincenzo – Pecoraro, Renzo (ed.), *Robo-Ethics. Humans, machines and health*, Pontifical Academy for Life, Vatican City 2020.

Paglia, Vincenzo – Pecoraro, Renzo (ed.), *The 'good' algorithm? Artificial intelligence: ethics, law, health*, Pontifical Academy for Life, Vatican City 2021.

Pariser, Eli, *The Filter Bubble: What the Internet Is Hiding from You*, Penguin Press, New York 2011.

Patsch, Ferenc, «L'Intelligenza artificiale generative e il nostro futuro. Una urgente necessità di regolamentazione», in *La Civiltà Cattolica* 4162/4 (2023) 313-325.

Paulauskas, Kestutis, «Why cognitive superiority is an imperative», in *NATO Review* (6.02.2024) (en Internet: https://www.nato.int/docu/review/articles/2024/02/06/why-cognitive-superiority-is-an-imperative/index.html).

Rifkin, Jeremy, *The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World*, Palgrave Macmillan, New York 2011.

Rodríguez Herrera, I. - Ortega Carmona, A., *Los escritos de San Francisco de Asís,* Espigas, Murcia ²2003.

Roose, Kevin, «My A.I. Homewrecker Has Turned Into an A.I. Office Drudge», in *NYT* (15.02.2024) 1, sec. A.

Russell, Stuart J. - Norving, Peter, *Artificial Intelligence: A Modern Approach*, 3rd ed., Prentice Hall, Upper Saddle River (NJ) 2010.

Santaella Braga, Maria Lúcia (ed.), *Inteligência artificial & redes sociais*, EDUC, São Paulo 2019.

Schieffer, Alexander - Lessem Ronnie, *Integral Development: Realising the Transformative Potential of Individuals, Organisations and Societies*, Gower, Farnham, Surrey (UK) 2014.

Schneier, Bruce, *Click Here to Kill Everybody: Security and Survival in a Hyper-connected World*, W.W. Norton & Company, New York 2019.

Schoeni, Daniel - Vestner, Tobias, *Ethical Dilemmas in the Global Defense Industry,* Oxford UP, New York 2023.

Shariff, Azim – Rahwan, Lyad – Bonnefon, Jean-François, «Whose life should your car save?», in *NYT* (6.11.2016) 9, sec. SR.

Schumacher, E.F., *Small is beautiful die Rückkehr zum menschlichen Mass*, Oekom, München 2013.

Schwab, Klaus, *The Fourth Industrial Revolution*, Crown Business, New York 2017

Stehr, Nico, *Understanding society and Knowledge*, Edward Elgar, Northampton (Mass) 2023.

Taddeo, Mariarosaria - Floridi, Luciano, «How AI Can Be a Force for Good,» in *Science* 361/6404 (2018) 751-752.

Tegmark, Max, *Vita 3.0. Essere umani nell'era dell'intelligenza artificiale*, Raffaello Cortina, Milano 2017.

Tufekci, Zeynep, *Twitter and Tear Gas: The Power and Fragility of Networked Protest*, Yale UP, New Haven, 2017.

Vara, Vauhini, «One Year In and ChatGPT Already Has Us Doing Its Bidding», in *NYT* (31.12.2023) 5, sec. SR.

Vilmer, J.-BJ., «Terminator ethics: Should we ban 'killer robots'?», in Otto, Philipp – Gräf, Eike, *3th1cs. A reinvention of ethics in the digital age?*, iRights media, Berlin 2017, 98-113.

Wagstaff, Jeremy, «Un nuevo modelo de ejército», https://www.imf.org/es/Publications/fandd/issues/2023/12/Case-Studies-New-model-army-Jeremy-Wagstaff

Winner, Langdon, «Do Artifacts Have Politics?», in *Daedalus*, 109/01 (1980.01.01), 121-136.

RESEÑAS

INSTITUTO TEOLÓGICO DE MURCIA OFM
Servicio de Publicaciones

FECYT-443/2024
Fecha de certificación: 30 de julio de 2021 (7ª convocatoria)
Válido hasta: 24 de julio de 2025