Journal of Moral Theology, Vol.11, Special Issue 1 (2022): 41–69

Artificial Intelligence and Social Control: Ethical Issues and Theological Resources

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ARTIFICIAL INTELLIGENCE (AI) IS A RAPIDLY expanding field of ongoing technological developments. While many stress how AI is socially beneficial, others manifest their critical assessment by focusing on what is researched and produced, and how it is used. To articulate an ethical analysis that highlights relevant aspects of the social impact of AI, this paper first considers the 2020 joint statement titled *Rome Call for AI Ethics*, which exemplifies an ethical approach centered on principles, as well as recent statements of Pope Francis, which articulate a more comprehensive ethical framework. Second, turning to the social context, the paper focuses on how AI is used within facial recognition systems, the justice system, and workplaces. A brief analysis of social dynamics, structures, and implementation strategies suggests that further ethical resources are needed. Hence, the paper ends with an invitation to discern between an ethic of control and an ethic of risk, engage biopower and biopolitics, and reflect on human labor.

THE *ROME CALL FOR AI ETHICS* AND POPE FRANCIS

On February 28, 2020, at the end of the international workshop "The 'Good' Algorithm? Artificial Intelligence, Ethics, Law, Health," organized by the Vatican's Pontifical Academy for Life (PAL), representatives of the PAL, Microsoft, IBM, the Food and Agriculture Organization of the United Nations (FAO), and the Italian Government signed the document *Rome Call for AI Ethics*,[1] "to support an ethical approach to artificial intelligence and promote a sense of responsibility among organizations, governments, and institutions with the aim to create a future in which digital innovation and technological

[1] Pontifical Academy for Life, "Artificial Intelligence 2020," 2020, www.academyforlife.va/content/pav/en/events/intelligenza-artificiale.html. AI stands for "Artificial Intelligence." For the *Encyclopedia Britannica*, artificial intelligence is "the ability of a computer or computer-controlled robot to perform tasks commonly associated with intelligent beings" (B. Jack Copeland, "Artificial Intelligence," *Encyclopedia Britannica,* 2020, www.britannica.com/technology/artificial-intelligence).

progress serve human genius and creativity and not their gradual replacement."[2]

The *Rome Call for AI Ethics* acknowledges that "AI offers enormous potential when it comes to improving social coexistence and personal well-being, augmenting human capabilities, and enabling or facilitating many tasks that can be carried out more efficiently and effectively."[3] Technology should be developed "for the good of humanity and of the environment, of our common and shared home, and of its human inhabitants, who are inextricably connected."[4]

To advocate for uses of AI technology aimed at serving the "human family,"[5] avoiding any exploitation and "respecting the inherent dignity of each of its members and all natural environments, and taking into account the needs of those who are most vulnerable,"[6] the document relies on the promotion of human rights.[7] Moreover, "the impact of the transformations brought about by AI in society, work, and education"[8] demands the development of "specific curricula that span different disciplines in the humanities, science, and technology."[9]

Finally, six principles summarize the "fundamental elements of good innovation":[10] transparency (i.e., AI systems must be explainable); inclusion ("*the needs of all human beings must be taken into consideration so that everyone can benefit and all individuals can be offered the best possible conditions to express themselves and develop*"); responsibility (concerning both designers and users); impartiality (avoiding bias and safeguarding fairness and human dignity); reliability of the AI systems; security of the AI systems; and respect for the privacy of users.[11]

Principles are highlighted in other international documents. As an example, in June 2019, the G20[12] adopted AI principles that aim at promoting "human-centered" developments and uses of AI

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[2] Pontifical Academy for Life, "Artificial Intelligence 2020."

[3] Pontifical Academy for Life, "Rome Call for AI Ethics," 2020, https://www.romecall.org/wp-content/uploads/2021/02/AI-Rome-Call-x-firma_DEF_DEF_con-firme_.pdf.

[4] Pontifical Academy for Life, "Rome Call for AI Ethics," 3.

[5] Pontifical Academy for Life, "Rome Call for AI Ethics," 3. The document quotes United Nations, "Universal Declaration of Human Rights," 1948, www.ohchr.org/EN/UDHR/Documents/UDHR_Translations/eng.pdf.

[6] Pontifical Academy for Life, "Rome Call for AI Ethics," 3.

[7] See Pontifical Academy for Life, "Rome Call for AI Ethics," 4–6.

[8] Pontifical Academy for Life, "Rome Call for AI Ethics," 5.

[9] Pontifical Academy for Life, "Rome Call for AI Ethics," 5.

[10] Pontifical Academy for Life, "Rome Call for AI Ethics," 8.

[11] Pontifical Academy for Life, "Rome Call for AI Ethics," 7. Emphasis in the original. In the document, only a few words define each principle.

[12] The G20 is the international forum for the governments and central bank governors from nineteen countries and the European Union.

technology.[13] These principles are: "inclusive growth, sustainable development, and well-being;[14] human-centered values and fairness;[15] transparency and explainability;[16] robustness, security, and safety;[17] and accountability."[18] As the G20 document acknowledges, these principles were formulated in the 2019 *Recommendation of the Council on Artificial Intelligence* of the Organisation for Economic Cooperation and Development (OECD).[19] In that document, the OECD promoted developments in artificial intelligence, while stressing the need to respect human rights and foster democratic values.[20]

At the conclusion of the PAL's workshop its President, Msgr. Vincenzo Paglia read Pope Francis's address to the PAL and participants.

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[13] G20 Trade Ministers and Digital Economy Ministers, "G20 Ministerial Statement on Trade and Digital Economy," 2019, www.mofa.go.jp/files/000486596.pdf.

[14] This trio implies "responsible stewardship" aiming at "beneficial outcomes for people and the planet," i.e., "augmenting human capabilities and enhancing creativity, advancing inclusion of underrepresented populations, reducing economic, social, gender, and other inequalities, and protecting natural environments" (G20 Trade Ministers and Digital Economy Ministers, "G20 Ministerial Statement," 11).

[15] These require respecting "freedom, dignity, and autonomy, privacy and data protection, nondiscrimination and equality, diversity, fairness, social justice, and internationally recognised labour rights" as well as implementing "mechanisms and safeguards, such as capacity for human determination, that are appropriate to the context and consistent with the state of art" (G20 Trade Ministers and Digital Economy Ministers, "G20 Ministerial Statement," 11).

[16] These demand "transparency and responsible disclosure" regarding AI systems "to foster a general understanding of AI systems; to make stakeholders aware of their interactions with AI systems, including in the workplace; to enable those affected by an AI system to understand the outcome; and, to enable those adversely affected by an AI system to challenge its outcome based on plain and easy-to-understand information on the factors, and the logic that served as the basis for the prediction, recommendation, or decision" (G20 Trade Ministers and Digital Economy Ministers, "G20 Ministerial Statement," 11).

[17] These urge "robust, secure, and safe" AI systems, avoiding any "unreasonable safety risk," ensuring "traceability, including in relation to datasets, processes, and decisions made" by these systems, and having in place a "systematic risk management approach … to address risks related to AI systems, including privacy, digital security, safety, and bias" (G20 Trade Ministers and Digital Economy Ministers, "G20 Ministerial Statement," 11–12).

[18] This stresses how "AI actors should be accountable for the proper functioning of AI systems" and for respecting these principles (G20 Trade Ministers and Digital Economy Ministers, "G20 Ministerial Statement," 12).

[19] See Organisation for Economic Cooperation and Development, *Recommendation of the Council on Artificial Intelligence*, OECD Legal Instruments 0449 (Paris: Organisation for Economic Cooperation and Development, 2020), 3; see also 7–8. The OECD is an intergovernmental economic organization with 36-member countries; it was founded in 1961 to stimulate economic progress and world trade. The US counts among its founding nations.

[20] For another example, see High-Level Expert Group on AI, *Ethics Guidelines for Trustworthy Artificial Intelligence* (Brussels: European Commission, 2019), 12–13. In this case, the principles are: respect for human autonomy, prevention of harm, fairness, and explicability.

In the Pope's text, we read that artificial intelligence "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" by informing human decisions.[21] Moreover, "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."[22] Hence, for Francis, our freedom is challenged and "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."[23]

For Pope Francis, the ethical agenda should be inclusive, involving "the human family as a whole"[24] and dialogical, leading to "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."[25] While the Pope evokes the possibility of developing an "algor-ethics,"[26] he advocates for human rights, discernment, and the tenets of Catholic social teaching: the promotion of the common good, "the dignity of the person, justice, subsidiarity, and solidarity."[27] For Francis, these are the ethical resources that can accompany the current technological development of AI.

These themes shape Pope Francis's reflection on human agency, technology, and society. In his 2015 encyclical letter *Laudato Si'*, he appreciates the social benefits that technological developments made

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[21] Francis, "Discorso ai Partecipanti alla Plenaria della Pontificia Accademia per la Vita Letto da S.E. Mons. Vincenzo Paglia, 28.02.2020," press.vatican.va/content/salastampa/it/bollettino/pubblico/2020/02/28/0134/00291.html#eng.

[22] Francis, " Discorso ai Partecipanti."

[23] Francis, " Discorso ai Partecipanti."

[24] Francis, " Discorso ai Partecipanti."

[25] Francis, " Discorso ai Partecipanti."

[26] "Algor-ethics" means "the ethical development of algorithms" (Francis, "Discorso ai Partecipanti"). See also Francis, "Address to Participants in the Congress on Child Dignity in the Digital World (November 14, 2019)," www.vatican.va/content/francesco/en/speeches/2019/november/documents/papa-francesco_20191114_convegno-child%20dignity.pdf.

[27] Francis, " Discorso ai Partecipanti." See also Antonio Spadaro and Paul Twomey, "Intelligenza Artificiale e Giustizia Sociale: Una Sfida per la Chiesa," *La Civiltà Cattolica* I, no. 4070 (2019): 121–31.

possible,[28] but is also aware of possible risks[29] and, in particular, of "the effects of technological innovations on employment, social exclusion, an inequitable distribution and consumption of energy and other services, social breakdown, increased violence, and a rise in new forms of social aggression, drug trafficking, growing drug use by young people, and the loss of identity" (no. 46).[30] Moreover, he worries about how human agency could be undermined by overemphasizing what he calls the technocratic paradigm that "tends to dominate economic and political life" and "exalts the concept of a subject who, using logical and rational procedures, progressively approaches and gains control over an external object" (nos. 109, 106).[31] According to Pope Francis, to reclaim agency, "We have to accept that technological products are not neutral, for they create a framework which ends up conditioning lifestyles and shaping social possibilities along the lines dictated by the interests of certain powerful groups. Decisions which may seem purely instrumental are in reality decisions about the kind of society we want to build" (no. 107).

Hence, the Pope calls for "an integral development and an improvement in the quality of life" (no. 46) that will "broaden our vision" (no. 112), address inequalities,[32] eliminate divisions,[33] and promote

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[28] "Technology has remedied countless evils which used to harm and limit human beings" (*Laudato Si'*, no. 102). Moreover, "Technology is characteristic of the human being. It should not be understood as a force that is alien to and hostile to it, but as a product of its ingenuity through which it provides for the needs of living for oneself and for others. It is therefore a specifically human mode of inhabiting the world" (Francis, "Address to Participants in the Plenary Assembly of the Pontifical Academy for Life," 2019, www.vatican.va/content/francesco/en/speeches/2019/february/documents/papa-francesco_20190225_plenaria-accademia-vita.html). However, "There is an urgent need for greater study and discussion of the social effects of this technological development, for the sake of articulating an anthropological vision adequate to this epochal challenge" (Francis, "Address to Participants in the Plenary Assembly of the Pontifical Academy for Life," 2017, w2.vatican.va/content/francesco/en/speeches/2017/october/documents/papa-francesco_20171005_assemblea-pav.html).

[29] See Francis, "Address to Participants in the Congress on Child Dignity."

[30] See also Francis, "Message to the Executive Chairman of the 'World Economic Forum' on the Occasion of the Annual Gathering in Davos-Klosters (23–26 January 2018)," w2.vatican.va/content/francesco/en/messages/pont-messages/2018/documents/papa-francesco_20180112_messaggio-davos2018.html.

[31] For Pope Francis, "Our immense technological development has not been accompanied by a development in human responsibility, values, and conscience" (*Laudato Si'*, no. 105). On responsibility, see Francis, "Address to Participants in the Plenary Assembly," 2017, no. 2.

[32] See Francis, "Address to Participants in the Plenary Assembly," 2019.

[33] See Francis, "*Humana Communitas* (the Human Community): Letter of His Holiness Pope Francis to the President of the Pontifical Academy for Life for the 25th Anniversary of the Establishment of the Academy," 2019, www.vatican.va/content/francesco/en/letters/2019/documents/papa-francesco_20190106_lettera-accademia-vita.html.

freedom,[34] even to "limit and direct technology" by placing any development at the service of a type of progress "which is healthier, more human, more social, more integral" (no. 115).

Discernment[35] allows us to assess "the social effects of technological development"[36] and fosters a "general rethinking of social policies and human rights"[37] in order "to safeguard the dignity of the human person, in particular by offering to all people real opportunities for integral human development and by implementing economic policies that favour the family."[38]

Furthermore, "an ethic of sustainable and integral development, based on values that place the human person and his or her rights at the centre,"[39] rejects "a 'throwaway' culture and a mentality of indifference,"[40] and urges all people of good will to embrace and implement "a new vision aimed at promoting a humanism of fraternity and solidarity between individuals and peoples"[41] that includes caring for the whole planet, while being aware that "fraternity remains the unkept promise of modernity."[42]

Hence, "Artificial intelligence, robotics, and other technological innovations must be so employed that they contribute to the service of humanity and to the protection of our common home, rather than to the contrary, as some assessments unfortunately foresee."[43]

To sum up, Pope Francis invites us to consider technology by focusing on moral agents and agency, by considering which interests drive research and implementation of technological developments, and by empowering citizens with his inspired vision of integral development and a good society.

Agreeing on the importance of examining artificial intelligence in light of a moral vision that promotes agency, in what follows I discuss three ongoing implementations of AI within social contexts:[44] facial

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[34] See *Laudato Si'*, no. 112. "Freedom and the protection of privacy are valuable goods that need to be balanced with the common good of society" (Francis, "Address to Participants in the Congress on Child Dignity").

[35] See Francis, "*Humana Communitas*," nos. 10–11. See also Francis, "Message to the Executive Chairman."

[36] Francis, "Address to Participants in the Plenary Assembly," 2017.

[37] Francis, "*Humana Communitas*."

[38] Francis, "Message to the Executive Chairman."

[39] Francis, "Message to the Executive Chairman."

[40] Francis, "Message to the Executive Chairman."

[41] Francis, "*Humana Communitas*," no. 6; see also no. 4; and Francis, "Address to Participants in the Congress on Child Dignity."

[42] Francis, "*Humana Communitas*," no. 13. See also Francis, "*Fratelli Tutti*: On Fraternity and Social Friendship," 2020, www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20201003_enciclica-fratelli-tutti.html.

[43] Francis, "Message to the Executive Chairman."

[44] For "an interdisciplinary research center dedicated to understanding the social implications of artificial intelligence," see New York University, "AI Now," 2020, ainowinstitute.org/. For initiatives in the Global South, see Abhishek Gupta and

recognition systems and how artificial intelligence is used, respectively, within the justice system and in workplaces. In relation to these specific contexts, the ethical agenda outlined by the *Rome Call for AI Ethics* and by Pope Francis could be further enriched. Hence, as I anticipated, an approach that critically examines these three implementations as forms of social control could first discern between an ethic of control and an ethic of risk, second revisit biopower and biopolitics, and third re-appropriate human-centered labor.

AI AND FACIAL RECOGNITION SYSTEMS: DIGITAL TRACKING

Within society, AI systems are increasingly present: from facial recognition services[45] to talking digital assistants—like Amazon Echo Plus (Alexa), Apple Homepod (Siri), and Google Home (Google Assistant);[46] from driverless cars undergoing driving testing;[47] to instant translation services like Google Translate.[48] These systems learn from enormous amounts of information. What are their ethical implications for individuals and society? I focus on facial recognition systems in law enforcement and security, as well as in public places and education.

Clearview AI: A Secretive Company[49]

Facial recognition systems in law enforcement are not new. Police departments have been using them for almost twenty years.[50] In the past, these systems searched only "government-provided images, such as mug shots and driver's license photos."[51] Now, they turn to the

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Victoria Heath, "AI Ethics Groups Are Repeating One of Society's Classic Mistakes," *MIT Technology Review,* 2020, www.technologyreview.com/2020/09/14/1008323/ai-ethics-representation-artificial-intelligence-opinion/. I am grateful to Kristin E. Heyer for this last reference.

[45] See Cade Metz and Natasha Singer, "Newspaper Shooting Shows Widening Use of Facial Recognition by Authorities," *New York Times*, June 29, 2018, www.nytimes.com/2018/06/29/business/newspaper-shooting-facial-recognition.html.

[46] See Keith Collins and Cade Metz, "Alexa vs. Siri vs. Google: Which Can Carry on a Conversation Best?," *New York Times*, August 17, 2018, www.nytimes.com/interactive/2018/08/17/technology/alexa-siri-conversation.html.

[47] See Cade Metz, "Competing with the Giants in Race to Build Self-Driving Cars," *New York Times*, January 4, 2018, www.nytimes.com/2018/01/04/technology/self-driving-cars-aurora.html.

[48] See Gideon Lewis-Kraus, "The Great AI Awakening," *New York Times*, December 16, 2016, www.nytimes.com/2016/12/14/magazine/the-great-ai-awakening.html.

[49] See Clearview AI, "Computer Vision for a Safer World," 2020, clearview.ai/.

[50] See Jennifer Valentino-DeVries, "How the Police Use Facial Recognition, and Where It Falls Short," *New York Times*, January 12, 2020, www.nytimes.com/2020/01/12/technology/facial-recognition-police.html.

[51] Kashmir Hill, "The Secretive Company That Might End Privacy as We Know It," *New York Times*, January 18, 2020, www.nytimes.com/2020/01/18/technology/clearview-privacy-facial-recognition.html.

facial recognition company Clearview AI, by taking a picture of a person and uploading it on the company's app. The app searches the Clearview database for public photos of that person, along with links to where those photos appear. The database has more than three billion images, scraped from Facebook, YouTube, Venmo, and millions of other websites—a practice that is ethically problematic, particularly when it concerns copyrighted data and personal information.[52] Every uploaded photo expands the Clearview database.

Clearview provides paid access to its app to hundreds of law enforcement agencies: from local police in Florida, the FBI and the Department of Homeland Security to Canadian law enforcement authorities. In 2019, "more than 600 law enforcement agencies have started using Clearview."[53] While federal and state law enforcement officers have "only limited knowledge of how Clearview works and who is behind it, they had used its app to help solve shoplifting, identity theft, credit card fraud, murder, and child sexual exploitation cases."[54] Clearview's business is larger than enforcement agencies, as it also includes "at least a handful of companies for security purposes."[55] Will the Clearview app—or other possible similar apps—be available to everyone who can pay, for whatever use they want to make of it?

Clearview claims that its app finds matches up to 75 percent of the time, but it is unclear how often there are false matches. The tool has not been tested by the National Institute of Standards and Technology—the federal agency that rates the performance of facial recognition algorithms.[56] In particular, "the larger the database, the larger the risk of misidentification because of the doppelgänger effect," which describes a non-biologically related look-alike of a living person.[57]

Without any public scrutiny, transparency, and accountability, "the tool could identify activists at a protest or an attractive stranger on the subway, revealing not just their names but where they lived, what they did and whom they knew."[58] Moreover, law enforcement agencies upload sensitive photos to servers of a "company whose ability to protect its data is untested."[59]

Clearview is using artificial intelligence to weaponize images available on the web, from social media to other websites. Curiously,

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[52] See the European General Data Protection Regulation (GDPR), which came into force in May 2018, in "Complete Guide to GDPR Compliance," *GDPR.EU*, 2022, gdpr.eu/. See also "Web Scraping Laws," *TermsFeed*, 2021, www.termsfeed.com/blog/web-scraping-laws/.
[53] Hill, "The Secretive Company."
[54] Hill, "The Secretive Company."
[55] Hill, "The Secretive Company."
[56] See www.nist.gov/.
[57] Hill, "The Secretive Company."
[58] Hill, "The Secretive Company."
[59] Hill, "The Secretive Company."

the company depends on people's transparency and visibility, but it lacks transparency about its business practices and is almost invisible on the web.[60]

The Proliferation of Biased Facial Recognition Systems

While few US cities have banned government use of facial recognition (in California: San Francisco,[61] Oakland, and Berkeley; in Massachusetts: Brookline and Somerville), since 2018 some airports[62] and public venues, like Madison Square Garden in Manhattan,[63] have adopted it.

Lockport is a small city 20 miles east of Niagara Falls.[64] In the name of safety, in 2020 the Lockport School District installed a facial recognition system in its eight high schools "to help prevent mass shootings and stop sexual predators."[65] Hence, this is "the first known public school district in New York to adopt facial recognition, and one of the first in the nation."[66]

In higher education, Stanford University is already using facial recognition systems on its campus. Other universities might follow suit. However, at the University of Southern California, in Los Angeles, the planned implementation of facial recognition technology was cancelled due to backlash.[67]

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[60] See Clearview AI, "Computer Vision for a Safer World."

[61] See Kate Conger, Richard Fausset, and Serge F. Kovaleski, "San Francisco Bans Facial Recognition Technology," *New York Times*, May 14, 2019, www.nytimes.com/2019/05/14/us/facial-recognition-ban-san-francisco.html.

[62] See Catie Edmondson, "An Airline Scans Your Face. You Take Off. But Few Rules Govern Where Your Data Goes," *New York Times*, August 6, 2018, www.nytimes.com/2018/08/06/us/politics/facial-recognition-airports-privacy.html.

[63] See Kevin Draper, "Madison Square Garden Has Used Face-Scanning Technology on Customers," *New York Times*, March 13, 2018, www.nytimes.com/2018/03/13/sports/facial-recognition-madison-square-garden.html.

[64] See Davey Alba, "Facial Recognition Moves into a New Front: Schools," *New York Times*, February 6, 2020, www.nytimes.com/2020/02/06/business/facial-recognition-schools.html.

[65] See Alba, "Facial Recognition," B6.

[66] Alba, "Facial Recognition," B1.

[67] See Sigal Samuel, "Is Your College Using Facial Recognition on You? Check This Scorecard," *Vox* 2020, www.vox.com/2020/1/29/21112212/facial-recognition-college-campus-scorecard; David Z. Morris, "College Backlash against Facial Recognition Technology Grows," *Fortune* 2020, fortune.com/2020/02/27/college-facial-recognition-technology-backlash/; Sameera Pant, Julia Shapero, and Saumya Gupta, "UCLA Decides Not to Implement Facial Recognition Technology after Student Backlash," *Daily Bruin*, 2020, dailybruin.com/2020/02/19/ucla-decides-not-to-implement-facial-recognition-technology-after-student-backlash; Drew Harwell, "Colleges Are Turning Students' Phones into Surveillance Machines, Tracking the Locations of Hundreds of Thousands," *The Washington Post*, December 24, 2019, www.washingtonpost.com/technology/2019/12/24/colleges-are-turning-students-

Globally, China is the leader in implementing facial recognition systems.[68] Within the country—in its cities and, in the future, even at crossroads in villages—cameras with facial recognition strictly control citizens, especially minorities like the Uyghurs—the Muslim Turkic-speaking minority in the Xinjiang Uyghur Autonomous Region in Northwest China.[69] China also leads in exporting and implementing these systems in the Global South:[70] from Singapore[71] to Mongolia; Ethiopia and Zimbabwe,[72] Kenya,[73] Uganda and Zambia;[74] Ecuador[75]

phones-into-surveillance-machines-tracking-locations-hundreds-thousands/. I am grateful to Peter Fay for these references.

[68] See Steven Feldstein, *The Global Expansion of AI Surveillance* (Washington, DC: Carnegie Endowment for International Peace, 2019). For a documentary, see Neil Docherty and David Fanning, "In the Age of AI," *PBS Frontline,* 2019, www.pbs.org/wgbh/frontline/film/in-the-age-of-ai/.

[69] See Charlie Campbell, "'The Entire System Is Designed to Suppress Us.' What the Chinese Surveillance State Means for the Rest of the World," *Time*, 2019, time.com/5735411/china-surveillance-privacy-issues/.

[70] See Mara Wang, "China's Dystopian Push to Revolutionize Surveillance," *The Washington Post*, August 18, 2017, www.washingtonpost.com/news/democracy-post/wp/2017/08/18/chinas-dystopian-push-to-revolutionize-surveillance/.

[71] See Alexa Hagerty and Igor Rubinov, "Global AI Ethics: A Review of the Social Impacts and Ethical Implications of Artificial Intelligence," *arXiv* 2019, arxiv.org/abs/1907.07892.

[72] See Scott N. Romaniuk and Tobias Burgers, "How China's AI Technology Exports Are Seeding Surveillance Societies Globally," *The Diplomat,* 2018, thediplomat.com/2018/10/how-chinas-ai-technology-exports-are-seeding-surveillance-societies-globally/. See also Chinmayi Arun, "AI and the Global South: Designing for Other Worlds," in *The Oxford Handbook of Ethics of AI*, ed. M. D. Dubber, F. Pasquale, and S. Das (New York: Oxford University Press, 2020), 590–610, at 600.

[73] See Abdi Latif Dahir, "Chinese Firms Are Driving the Rise of AI Surveillance Across Africa," *Quartz Africa,* 2019, qz.com/africa/1711109/chinas-huawei-is-driving-ai-surveillance-tools-in-africa/. See also N. D. Francois, "Huawei's Surveillance Tech in Kenya: A Safe Bet?," *Africa Times,* 2019, africatimes.com/2019/12/18/huaweis-surveillance-tech-in-kenya-a-safe-bet/.

[74] See Joe Parkinson, Nicholas Bariyo, and Josh Chin, "Huawei Technicians Helped African Governments Spy on Political Opponents," *The Wall Street Journal*, August 15, 2019, www.wsj.com/articles/huawei-technicians-helped-african-governments-spy-on-political-opponents-11565793017.

[75] See Paul Mozur, Jonah M. Kessel, and Melissa Chan, "Made in China, Exported to the World: The Surveillance State," *New York Times*, April 24, 2020, www.nytimes.com/2019/04/24/technology/ecuador-surveillance-cameras-police-government.html. Similar surveillance systems have been sold to Venezuela, Bolivia, and Angola.

to Brazil[76] and Argentina.[77] AI technology makes possible social control, whether within China, as an expression of its authoritarian regime, or globally, by allowing Chinese access to these systems and their data, and by facilitating local authorities in their social control of citizens. Hence, reflections on AI should include systemic critiques of authoritarian states and of unethical policies harming democracies.[78]

Despite its increasing global implementation, facial recognition technology is not an exact science and it has always been controversial. The percentage of false matches is high.[79] While proponents view facial recognition as an important tool for catching criminals and tracking terrorists, critics are concerned about "privacy, accuracy, and racial bias."[80] In 2019, the National Institute of Standards and Technology tested 189 facial recognition algorithms from 99 developers.[81] The study found that algorithms falsely identified African-American and Asian faces 10 to 100 times more than Caucasian faces. The highest proportion of errors occurred in the case of Native Americans.[82]

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[76] See Hagerty and Rubinov, "Global AI Ethics," 25. The authors refer to: Ray Walsh, "Brazil Employs Facial Recognition Technology to Tackle Crime Hotpots," *ProPrivacy,* 2019, proprivacy.com/privacy-news/brazil-facial-recognition-cameras; Chris Burt, "Possibility of Chinese Facial Biometrics Systems in Brazilian CCTV Network Raises Concerns," *Biometric Update,* 2019, www.biometricupdate.com/201901/possibility-of-chinese-facial-biometrics-systems-in-brazilian-cctv-network-raises-concerns.

[77] See Jose Hermosa, "Chinese Regime to Install Giant Surveillance System in Argentina," *The BL,* 2019, thebl.com/world-news/chinese-regime-to-install-giant-surveillance-system-in-argentina.html.

[78] See Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (New York: PublicAffairs, 2019).

[79] See Joy Buolamwini, Vicente Ordóñez, Jamie Morgenstern, and Erik Learned-Miller, *Facial Recognition Technologies: A Primer* (n.p.: Algorithmic Justice League, 2020); Natasha Singer, "Amazon Is Pushing Facial Technology That a Study Says Could Be Biased," *New York Times*, January 24, 2019, www.nytimes.com/2019/01/24/technology/amazon-facial-technology-study.html.

[80] Alba, "Facial Recognition," B6.

[81] The developers "included systems from Microsoft, biometric technology companies like Cognitec, and Megvii, an artificial intelligence company in China. The agency did not test systems from Amazon, Apple, Facebook, and Google because they did not submit their algorithms for the federal study" (Natasha Singer and Cade Metz, "Many Facial-Recognition Systems Are Biased, Says US Study," *New York Times*, December 19, 2019, www.nytimes.com/2019/12/19/technology/facial-recognition-bias.html).

[82] On bias in AI used in healthcare, see Tom Simonite, "A Health Care Algorithm Offered Less Care to Black Patients," *Wired,* 2019, www.wired.com/story/how-algorithm-favored-whites-over-blacks-health-care/. I am grateful to Mark McKenna for this reference. See also Ziad Obermeyer, Brian Powers, Christine Vogeli, and Sendhil Mullainathan, "Dissecting Racial Bias in an Algorithm Used to Manage the Health of Populations," *Science* 366, no. 6464 (2019): 447–53; Michele Samorani, Shannon Harris, Linda Goler Blount, Haibing Lu, and Michael A. Santoro, "Overbooked and Overlooked: Machine Learning and Racial Bias in Medical Appointment Scheduling," *SSRN* 2020, dx.doi.org/10.2139/ssrn.3467047; Nicole

The technology had more difficulty recognizing women than men—in particular African-American—and, in terms of age, "It falsely identified older adults up to 10 times more than middle-aged adults."[83] As Niraj Chokshi writes, "The problem, in part, is that facial recognition is only as good as the examples on which it is trained. And one widely used data set was estimated to be more than 75 percent male and more than 80 percent white."[84]

The technology's biases and lack of accuracy should be addressed and eliminated. Both a moratorium on the implementation of biometric technology in public spaces and appropriate ethical assessment and legal safeguards, are also needed.[85] Furthermore, neither the deep learning AI algorithms used for facial recognition systems, nor their applications are sufficiently critically evaluated. For civil liberties experts, "The technology—which can be used to track people at a distance without their knowledge—has the potential to lead to ubiquitous surveillance, chilling freedom of movement and speech."[86]

Using such a biased and error prone technology in civil society and law enforcement could lead to false accusations. In the US, people should be protected by a strong federal privacy law. Some citizens began to demand that facial recognition be regulated, to control those who control us.[87] Others already asked to ban it. Woodrow Hartzog,

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Martinez-Martin, "What Are Important Ethical Implications of Using Facial Recognition Technology in Health Care?," *AMA Journal of Ethics* 21, no. 2 (2019): E180–87.

[83] Singer and Metz, "Many Facial-Recognition Systems." See also Joy Buolamwini and Timnit Gebru, "Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification," *Proceedings of Machine Learning Research* 81 (2018): 77–91.

[84] Niraj Chokshi, "Facial Recognition's Many Controversies, from Stadium Surveillance to Racist Software," *New York Times*, May 15, 2019, www.nytimes.com/2019/05/15/business/facial-recognition-software-controversy.html.

[85] See Davide Castelvecchi, "Beating Biometric Bias," *Nature* 587, no. 7834 (2020): 347–49, at 348; Kate Crawford, "Regulate Facial-Recognition Technology," *Nature* 572, no. 7771 (2019): 565; Richard Van Noorden, "The Ethical Questions That Haunt Facial-Recognition Research," *Nature* 587, no. 7834 (2020): 354–58.

[86] Singer and Metz, "Many Facial-Recognition Systems." "AI-driven technologies have a pattern of entrenching social divides and exacerbating social inequality, particularly among historically-marginalized groups" (Hagerty and Rubinov, "Global AI Ethics," 1). For a movement towards equitable and accountable AI, see Algorithmic Justice League (AJL): www.ajl.org/. AJL was founded by computer scientist Joy Buolamwini at the Massachusetts Institute of Technology in Cambridge, MA.

[87] Because of citizens' pressure, animated by Alistair McTaggart's engagement, California approved the Consumer Privacy Act (2018) granting consumers more control over their personal information collected by businesses (California Legislative, "California Consumer Privacy Act, Title 1.81.5," 2018, leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?division=3.&part=4.&lawCode=CIV&title=1.81.5). The measure was implemented on January 1, 2020. In Europe, General Data Protection Regulation is in place, but it does not clarify whether

professor of law and computer science at Northeastern University, tells poignantly: "I don't see a future where we harness the benefits of face recognition technology without the crippling abuse of the surveillance that comes with it. The only way to stop it is to ban it."[88] One might wonder whether this will ever happen. The powerful, largely hidden effects of algorithms in American life enhance biases and discriminations that already characterize our social fabric with its racial and gender inequities.

AI AND THE JUSTICE SYSTEM: AUTOMATED JUSTICE

In the US, at the federal and state levels, as well as in at least sixteen European countries, the justice system too is increasingly relying on artificial intelligence.[89] In almost every US state,[90] the most commonly used algorithms—called "pretrial risk assessment" or "risk assessments" or "evidence-based methods"—claim to predict future behavior of defendants and incarcerated persons. These AI systems are supposed to estimate the likelihood that the defendant will re-offend before trial (recidivism risk) and the likelihood the defendant will fail to appear at trial (FTA).[91]

Moreover, these algorithms are used to set bail, determine sentences, and even assess one's guilt or innocence. Yet we do not know how these systems work. For Aleš Završnik, "The technical sophistication of the new AI systems used in decision-making processes in criminal justice settings often leads to a 'black box' effect. The intermediate phases in the process of reaching a decision are by definition hidden from human oversight due to the technical complexity involved."[92] Hence, transparency, comprehensibility, and explainability are lacking in crucial decision-making processes.

To make a "criminal risk assessment," the algorithms consider personal characteristics like age, sex, geography, family background, and

researchers can collect photos of people for their research without their consent. See gdpr-info.eu/.

[88] Hill, "The Secretive Company."

[89] See Cade Metz and Adam Satariano, "An Algorithm That Grants Freedom, or Takes It Away," *New York Times*, February 6, 2020, www.nytimes.com/2020/02/06/technology/predictive-algorithms-crime.html.

[90] "In Arizona, Colorado, Delaware, Kentucky, Louisiana, Oklahoma, Virginia, Washington, and Wisconsin, the results of such assessments are given to judges during criminal sentencing" (Julia Angwin, Jeff Larson, Surya Mattu, and Lauren Kirchner, "Machine Bias," *ProPublica,* May 23, 2016, www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing).

[91] See Epic, "Algorithms in the Criminal Justice System: Risk Assessment Tools," *epic.org,* 2020, epic.org/algorithmic-transparency/crim-justice/.

[92] Aleš Završnik, "Criminal Justice, Artificial Intelligence Systems, and Human Rights," *ERA Forum* 20 (2020): 568.

employment status.[93] Hence, "As a result, two people accused of the same crime may receive sharply different bail or sentencing outcomes based on inputs that are beyond their control—but have no way of assessing or challenging the results."[94]

The algorithms are trained by relying on historical crime data. In such a way, the AI system supposedly identifies crime patterns. Karen Hao, however, stresses how

> those patterns are statistical *correlations—nowhere near the same as causations*. If an algorithm found, for example, that low income was correlated with high recidivism, it would leave you none the wiser about whether low income actually caused crime. But this is precisely what risk assessment tools do: they turn correlative insights into causal scoring mechanisms. Now populations that have historically been disproportionately targeted by law enforcement—especially low-income and minority communities—are at risk of being slapped with high recidivism scores. As a result, the algorithm could amplify and perpetuate embedded biases and generate even more bias-tainted data to feed a vicious cycle.[95]

These algorithms render the justice system less fair for criminal defendants because these technologies "are largely privately owned and sold for profit. The developers tend to view their technologies as trade secrets. As a result, they often refuse to disclose details about how their tools work, including to criminal defendants and their attorneys, even under a protective order, even in the controlled context of a criminal proceeding or parole hearing."[96]

Despite these limitations, predictive algorithms are spreading. In the US, authorities use them to set police patrols, prison sentences, and probation rules; in the Netherlands, to flag welfare fraud risks; and, in the UK, to rate which teenagers could become criminals. At the same time, "United Nations investigators, civil rights lawyers, labor unions and community organizers have been pushing back."[97] Algorithms could contribute to grant our freedom or take it away.[98]

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[93] See Derek Thompson, "Should We Be Afraid of AI in the Criminal-Justice System?," *The Atlantic,* 2019, www.theatlantic.com/ideas/archive/2019/06/should-we-be-afraid-of-ai-in-the-criminal-justice-system/592084/.
[94] See Epic, "Algorithms in the Criminal Justice System."
[95] Karen Hao, "AI Is Sending People to Jail—and Getting It Wrong," *MIT Technology Review,* 2019, www.technologyreview.com/2019/01/21/ 137783/algorithms-criminal-justice-ai/.
[96] Rebecca Wexler, "When a Computer Program Keeps You in Jail," *New York Times*, June 13, 2017, www.nytimes.com/2017/06/13/opinion/how-computers-are-harming-criminal-justice.html.
[97] Metz and Satariano, "An Algorithm That Grants Freedom."
[98] See Pedro Domingos, *The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World* (New York: Basic Books, 2015).

AI AND THE JOB MARKET: CHANGING INVESTMENTS, PRODUCTION, AND MARKETING

With a very emphatic and optimistic tone, the multinational Accenture claims that "in 12 developed economies AI could double annual economic growth rates in 2035 by changing the nature of work and creating a new relationship between man [*sic*] and machine. The impact of AI technologies on business is projected to increase labor productivity by up to 40 percent and enable people to make more efficient use of their time."[99] However, no indication of the social costs and transformations that AI will require, nor any comment on what will happen to the other 183 economies is provided.

In its 2017 report *Jobs Lost, Jobs Gained*, the McKinsey Global Institute provides a more nuanced assessment by stressing that by 2030, up to one third of the American workforce will need to change occupation.[100] Technological progress will lead these changes, but economic policies and social attitudes are no less relevant. History shows how humankind adapted to major technological changes (e.g., electricity and computers). With AI, transformations in workplaces might occur at a faster pace than in the past, causing greater disruption.

AI is rapidly introducing multiple levels of automation in the workplace. In the case of the hiring process, "Designed by the recruiting-technology firm HireVue, the [AI] system uses candidates' computer or cellphone cameras to analyze their facial movements, word choice, and speaking voice before ranking them against other applicants based on an automatically generated 'employability' score.… More than 100 employers now use the system, including Hilton and Unilever, and more than a million job seekers have been analyzed."[101] How facial expressions and emotions are assessed and evaluated,[102] and which criteria the AI system uses to select job candidates remains unclear. As a response, "In August [2019], Illinois Gov. J. B. Pritzker (D) signed a first-in-the-nation law that will force employers to tell job

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[99] Accenture, "Artificial Intelligence," 2020, www.accenture.com/us-en/insights/artificial-intelligence-summary-index.

[100] See James Manyika, Susan Lund, Michael Chui, Jacques Bughin, Jonathan Woetzel, Parul Batra, Ryan Ko, and Saurabh Sanghvi, *Jobs Lost, Jobs Gained: What the Future of Work Will Mean for Jobs, Skills, and Wages* (San Francisco: McKinsey Global Institute, 2017).

[101] Drew Harwell, "A Face-Scanning Algorithm Increasingly Decides Whether You Deserve the Job," *The Washington Post*, October 22, 2019, www.washingtonpost.com/technology/2019/10/22/ai-hiring-face-scanning-algorithm-increasingly-decides-whether-you-deserve-job/.

[102] On misinterpreting emotions and facial expressions, see Lisa Feldman Barrett, Ralph Adolphs, Stacy Marsella, Aleix M. Martinez, and Seth D. Pollak, "Emotional Expressions Reconsidered: Challenges to Inferring Emotion from Human Facial Movements," *Psychological Science in the Public Interest* 20, no. 1 (2019): 1–68.

applicants how their AI-hiring system works and get their consent before running them through the test."[103]

In warehouses, artificial intelligence already changed the working conditions. Online retailers like Amazon rely on AI for each step of the retail experience. Until recently, robots were able only to perform simple, repetitive motions, like picking up boxes. Boxes are easy objects because they have set dimensions that do not change. New robots, however, are more selective. They can pick up very different objects. For example, inside a "German warehouse, the robot can pick and sort more than 10,000 different items, and it does this with more than 99 percent accuracy."[104]

These changes in automation will influence employment and the whole marketplace. Both blue-collar and white-collar jobs will be lost, beginning with more socially vulnerable workers—among them, the elderly and women. For example, "The new warehouses will be built around A.I. robots and not humans."[105] To compensate and balance the loss of these jobs, new jobs are created. In the US, in the last six years, retail job losses "have been almost exactly counterbalanced by a gain of 118,000 light-truck or delivery-service driver jobs. The number of heavy-truck and tractor-trailer drivers increased more than 175,000 over the same period, making these two driving jobs among the fastest-growing occupations in the United States."[106]

Citizens need to reflect, however, on whether these new jobs offer the same protections and benefits that workers were able to negotiate in other productive sectors and jobs. For example, "Amazon uses AI to calculate how many drivers are needed in an area at any moment, based on package volume, weight, and travel time."[107] Working hours are flexible, with more workers hired during the holiday seasons, but "Drivers are responsible for providing their own vehicle, as well as fuel and other expenses. There are no benefits, little job security, and reports of sometimes grueling working conditions."[108]

A further example concerns India, plagued by the caste system. As Isabel Wilkerson has powerfully argued, the caste system is tragically responsible for the suffering and the inhuman social and working

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[103] Harwell, "A Face-Scanning Algorithm." The measure was implemented on January 1, 2020.
[104] Adam Satariano and Cade Metz, "A Warehouse Robot Learns to Sort out the Tricky Stuff," *New York Times*, January 29, 2020, www.nytimes.com/2020/01/29/technology/warehouse-robot.html.
[105] Satariano and Metz, "A Warehouse Robot."
[106] David Deming, "The Robots Are Coming: Prepare for Trouble," *New York Times*, January 30, 2020, www.nytimes.com/2020/01/30/business/artificial-intelligence-robots-retail.html.
[107] Deming, "The Robots Are Coming."
[108] Deming, "The Robots Are Coming."

conditions of too many people in India and elsewhere.[109] In particular, the oppression, marginalization, discrimination, and stigma that the Dalits experience is inhuman. What they suffer is unacceptable and should not be tolerated. Transformative social justice is urgent. In 2014, struggling to improve the country's sanitation, the Prime Minister Narendra Modi started "Swachh Bharat Abhiyan" (Clean India Mission), a campaign aimed at eliminating open defecation and improve human waste management. No mention was made of the urgent need to abolish manual scavenging of human waste performed daily by many Dalit women and men—a job no human being should ever do.[110]

The recent launch of Bandicott—an AI-controlled robot that replaces manual scavenging—is promoted by social activists attempting to abolish the caste-based labor of manual scavenging. Paradoxically, if these robots are implemented, the Dalits will lose those jobs and their social exclusion will further increase the lack of provisions to secure humanly appropriate jobs.[111] Hence, implementing Bandicott is not sufficient. Human dignity requires a more committed engagement to eliminate the caste system. The dignity of work demands to change unjust social structures and inhuman working conditions. The Dalits should contribute to the country's social development with humane jobs that do not threaten their health and well-being and are fairly compensated. They are citizens with equal rights deserving social recognition and respect.

To address the terrible working conditions that characterized the Industrial Revolution, "Beginning in the early 20th century, trade unions and new government regulations acted together to raise pay, improve working conditions, and increase workplace safety."[112] Hence, we need to prevent exploitation by protecting workers' rights and people's working conditions. According to David Deming, director of the Malcolm Wiener Center for Social Policy at the Harvard Kennedy

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[109] See Isabel Wilkerson, *Caste: The Origins of Our Discontents* (New York: Random House, 2020). On caste in India and the USA, see her chapter 7: "Through the Fog of Delhi to the Parallels in India and America," 71–77.

[110] See Assa Doron and Robin Jeffrey, *Waste of a Nation: Garbage and Growth in India* (Cambridge, MA: Harvard University Press, 2018), 69–97. I am grateful to Dhinakaran Savariyar for this suggestion and reference.

[111] See Garima Bora, "A Robot to End Manual Scavenging? This Startup Can Provide the 'Swachh Bharat' We Need," *The Economic Times,* 2019, economictimes.indiatimes.com/small-biz/startups/features/a-robot-to-end-manual-scavenging-this-startup-can-provide-the-swachh-bharat-we-need/articleshow/69685536.cms; Malavika Prasad and Vidushi Marda, "Interrogating 'Smartness': A Case Study on the Caste and Gender Blind Spots of the Smart Sanitation Project in Pune, India," in *Artificial Intelligence: Human Rights, Social Justice, and Development*, ed. Global Information Society Watch (New York: Association for Progressive Communications, 2019), 145–51.

[112] Deming, "The Robots Are Coming."

School, "We need to accept that we cannot stop the coming wave of technological change. But we can moderate its impact on society. We should act with purpose, embracing AI as a tool that will enable us to create a better and fairer world."[113]

Are we getting ready to address these changes in the job market? Are we reflecting critically on how to rethink the human role in workplaces? Are we considering human labor as an irreplaceable personal and social dimension that characterizes individual and collective flourishing, integral to promoting the common good within society? How should we think about education and getting ready for the workplace? With others, Juliet Schor invites us to consider how and for what we work, what our future ways of working will be, and how we will balance work and free time.[114]

THEOLOGICAL DISCOURSE: ADDRESSING SOCIAL CONTROL

The areas of social presence of artificial intelligence briefly examined—from civil society to education and law enforcement, from the judicial system to the workplace—show how social control occurs in multiple and diversified ways. In these contexts, AI technology is used to implement controlling power dynamics that affect citizens and limit people's freedom and agency. Theological ethics can contribute to identifying forms of social control that inhibit personal and social flourishing. After briefly summing up specific ethical challenges, with focused ethical approaches theological discourse further enriches the ethical agenda by engaging each of these three diverse contexts in which AI is implemented.

First, the proliferating and expanding use of facial recognition systems—from law enforcement to education, and civil society—is ethically problematic.[115] Citizens are neither informed nor protected. A critical assessment of these forms of social control can rely on articulating ethics of control and of risk.

Second, profiling, biases, and stigmatization depending on race, ethnicity, geography, residence, history, age, economic conditions,

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[113] Deming, "The Robots Are Coming."

[114] See Juliet B. Schor, *Plenitude: The New Economics of True Wealth* (New York: Penguin, 2010); Juliet Schor and Craig J. Thompson, eds., *Sustainable Lifestyles and the Quest for Plenitude: Case Studies of the New Economy* (New Haven, CT: Yale University Press, 2014); Juliet B. Schor, *After the Gig: How the Sharing Economy Got Hijacked and How to Win It Back* (Oakland, CA: University of California Press, 2020). To address changes in workplaces, some Northern European countries with strong welfare systems are considering reducing the number of working hours per week. They are debating whether each citizen should be paid a sufficient wage, even when jobs are not available, to protect their ability to live, buy, and consume.

[115] See Zaheer Allam and David S. Jones, "On the Coronavirus (COVID-19) Outbreak and the Smart City Network: Universal Data Sharing Standards Coupled with Artificial Intelligence (AI) to Benefit Urban Health Monitoring and Management," *Healthcare* 8, no. 1 (2020), 10.3390/healthcare8010046.

political and religious beliefs, bodily shape, height, weight, and class seem to inform the uses of artificial intelligence in the justice system. Paradoxically, AI could affect us by controlling us, while its stated purpose is to avoid any abuse that could harm us (from crimes to school shootings and terrorist attacks within the nation and internationally). Fear seems to dominate how AI is used in these social contexts. Because we are afraid of what could happen, as a civil society we might let our fear decide and take away hard won liberties and rights. Critical reflections that unmask and redirect biopower and biopolitics seem to be appropriate.

Third, AI is already changing our workplaces and leading a new technological revolution. The automation that AI is introducing requires a different expertise. Old jobs will be lost and new types of jobs will be created. To be 21st century Luddites and fight strenuously against technological transformations is neither intelligent nor wise. Imagination and creativity are needed to train current and future workers by protecting workers' rights and benefits. Hence, contributions that inform our reflection on human labor, working arrangements, and workplaces are beneficial.

Discerning between an Ethic of Control and an Ethic of Risk

Theological discourse should, first, identify any biased attempt and logic aimed at realizing oppressive social control in ways that disempower moral agents, as well as their social presence and action, by acquiring, storing, and manipulating any information that concerns them. Informing people that facial recognition systems are in place and gather data, and asking for one's consent to collect, store, and use data are essential. However, provision of information and request for consent are far from being implemented.

Per se, limited and regulated forms of social control are not necessarily evil practices. Any type of social control should be justified, respect citizens' privacy, protect their liberties, and avoid any racial disparity, bias, and discrimination. The rule of law, law enforcement, and public health measures—to contain the spreading of infections and protect the health of citizens—exemplify three contexts in which defined, bound, and limited social control aims at serving the citizens' quality of life.[116]

To express this concept differently, power is not necessarily abusive, but too often it is abused. To play with words, when power leads to oppressive social control, which discriminates unjustly among citizens, it should be controlled. For Sharon Welch, however, control

[116] Tragically, however, as social events continue to remind us, the rule of law, law enforcement, and public health measures continue to be abused and serve forms of social control that harm vulnerable citizens. I am grateful to Aimee Hein for stressing this important point.

might pervert moral agency because "our moral and political imagination is shaped by an ethic of control, a construction of agency, responsibility, and goodness which assumes that it is possible to guarantee the efficacy of one's actions."[117]

In anthropological terms, decisions and actions that embody and foster oppressive social control seem to be informed, again, by a pervasive and paralyzing fear that influences individual and social actions.[118] What is feared is perceived as a threatening "other," whether in the case of moral agents—i.e., isolated human beings, groups, and institutions—or technological advances and the opportunities they might offer. A further dimension of such a fear is the inability to appreciate how moral agents are capable of performing responsible actions. Hence, what is feared is people's ability to use technology in virtuous ways, critically examined and aimed at promoting individual and social flourishing—what could be defined as virtuous social control.

Second, by stressing the relational dimensions that constitute the social fabric, theological discourse should foster virtuous social dynamics regulating the use of technologies by placing them at the service of a social life that empowers citizens and promotes their social well-being. Sharon Welch, Cynthia Crysdale, and Kristin Heyer exemplify authors who help us to aim at this goal by discerning between an ethic of control and an ethic of risk.

Because human beings are relational beings, created in the image of God,[119] an ethic of risk starts with the risk associated with one's being and with engaging in relationships. The unpredictability of everyday life, with its multiple and multifaceted relationships, is assumed and lived without the intent of controlling each of its dimensions and aspects. We recognize what can generate fear and is ethically risky. The ethical response avoids embracing an attitude of controlling domination, flawed because it lures us with the unrealistic goal of

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[117] Sharon D. Welch, *A Feminist Ethic of Risk*, rev. ed. (Minneapolis, MN: Fortress, 2000), 14. Quoted in Andrea Vicini, SJ, "Ethical Issues and Approaches in Stem Cell Research: From International Insights to a Proposal," *Journal of the Society of Christian Ethics* 23, no. 1 (2003): 98, n. 113.

[118] For a biblical study, see Bruna Costacurta, *La Vita Minacciata: Il Tema della Paura nella Bibbia Ebraica*, Analecta Biblica (Roma: Pontificio Istituto Biblico, 1988). For a pastoral approach, see Virginio Spicacci, *Gesù, Una Buona Notizia! Vols. 1-2*, Formazione (Roma: Apostolato della Preghera, 2015).

[119] See Mary Jo Iozzio, "Radical Dependence and the *Imago Dei*: Bioethical Implications of Access to Healthcare for People with Disabilities," *Christian Bioethics* 23, no. 3 (2017): 234–60; Chammah Judex Kaunda, "Bemba Mystico-Relationality and the Possibility of Artificial General Intelligence (AGI) Participation in *Imago Dei*," *Zygon* 55, no. 2 (2020): 327–43; Karen O'Donnell, "Performing the *Imago Dei*: Human Enhancement, Artificial Intelligence and Optative Image-Bearing," *International Journal for the Study of the Christian Church* 18, no. 1 (2018): 4–15.

eliminating any uncontrolled element and factor, as well as any perceived danger and risk, and seduces with the fake panacea of total control.[120]

An ethic of risk addresses scientific issues that concern individuals and society by relying on an ongoing discerning attitude evaluating whether to pursue research and implement its applications in society. Such an ethic formulates ethical questions, suggests caution when necessary, and examines possible alternatives when choices are due. An ethic of risk is not risky; it invites us to identify virtuous ways and engage virtuously in what might be perceived as somehow ethically risky. Prudent discernment is at the core of an ethic of risk.

Other elements characterize an ethic of risk. For Sharon Welch, a feminist ethic of risk implies "a redefinition of responsible action, grounding in community, and strategic risk-taking."[121] In particular, responsible action means "the creation of a matrix in which further actions are possible, the creation of the conditions of possibility for desired ends."[122] Stressing its communal dimension, an ethic of risk aims at promoting relational and institutional dynamics within the social context without the intent of fostering manipulative social control and relying on the ethical empowerment of all moral agents. Strategic risk-taking implies that an ethic of risk exposes the vulnerability of moral agents by presupposing continuing discernment and evaluation without offering the apparent warranties of an ethic of control. The ethic of risk presupposes the human ability of addressing what appears to be a risk—for individuals and society—in ways that do not foster unnecessary risk-taking and neither harm moral agents ethically, emotionally, psychologically, spiritually, and socially, nor inhibit their personal and social agency.[123]

While Welch advocates for an ethic of risk as radical response to the limits and faults of an ethic of control, both Cynthia Crysdale and Kristin Heyer stress the helpful tension between an ethic of control and an ethic of risk. For Crysdale, "The goal of one's actions may be to enhance control for those who lack it, but this goal will be undertaken in a stance of risk," that is, marked by "redefinition of responsible action, grounding in community, and strategic resourcefulness over the long haul."[124]

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[120] On totality as ethically problematic, see Emmanuel Levinas, *Totalité et infini: essai sur l'extériorité*, 3rd ed., Phaenomenologica (La Haye: Nijhoff, 1968).

[121] Welch, *A Feminist Ethic of Risk*, 46. Quoted in Vicini, "Ethical Issues and Approaches," 84.

[122] Welch, *A Feminist Ethic of Risk*, 46.

[123] For an ethic of risk on war and peace, see Sharon D. Welch, *After Empire: The Art and Ethos of Enduring Peace* (Minneapolis, MN: Fortress, 2004), 159–84.

[124] Cynthia S. W. Crysdale, "Making a Way by Walking: Risk, Control, and Emergent Probability," *Theoforum* 39, no. 1 (2008): 57. Quoted in Kristin E. Heyer, "The Social Witness and Theo-Political Imagination of the Movements: Creating a New Social

Being attentive to existing conditions of social inequities and how they inhibit moral agency in the social fabric, for Heyer an ethic of risk "acknowledges that actions may only lead to partial results, but amid a long-term struggle with oppressive situations, the goal of moral action is 'the creation of new conditions of possibility for the future.'"[125] On the one hand, "An ethic of risk thus entails redefining responsible action, in terms of 'the creation of the conditions of possibility for desired changes.'"[126] On the other hand, moral agency is understood "in terms of 'responsible actions within the limits of bounded power,' entailing 'persistent defiance and resistance in the face of repeated defeats.'"[127] For Heyer, "Integrating a view of moral agency as entailing both control and risk seeks to engender contexts and conditions that empower agents, while attending to the responsibilities of the vulnerable and those whose choices impact them."[128]

While forms of social control might perceive moral agents as threats that should be manipulated and disempowered, an ethic of control aims at empowering citizens. Hence, sinful dynamics and practices that use AI and in particular facial recognition systems for ethically problematic purposes, motivated by fear and for the sake of social control, should receive citizens' attention. Echoing what Crysdale and Heyer suggest, empowered citizens should implement forms of democratically supervised social control. By such means, moral agents would express the tension between an ethic of control and of risk in ways that identify, name, and regulate uses of facial recognition systems that do not harm citizens, with great attention to those who in society are more vulnerable. Virtuous social agency is possible and virtuous social practices are needed.

Revisiting Biopower and Biopolitics

Initially proposed by the French philosopher Michel Foucault (1926–1984), the notion of "biopower" leads to critically examine technologies that affect personal and social life by focusing on the dynamics of power and their effects concentrated on people's bodies.[129]

Space as a Challenge to Catholic Social Thought," *Journal of Catholic Social Thought* 10, no. 2 (2013): 326.

[125] Heyer, "The Social Witness," 325. She quotes Crysdale, "Making a Way by Walking," 40–41. See also Kristin E. Heyer, *Kinship across Borders: A Christian Ethic of Immigration* (Washington, DC: Georgetown University Press, 2012), 155.

[126] Heyer, "The Social Witness," 325, quoting Welch, *A Feminist Ethic of Risk*, 46. See also Heyer, *Kinship across Borders*, 155.

[127] Heyer, "The Social Witness," 325.

[128] Heyer, "The Social Witness," 326.

[129] See Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. A. M. S. Smith, World of Man (New York: Pantheon, 1973). See also Black Hawk Hancock, "Michel Foucault and the Problematics of Power: Theorizing DTCA and Medicalized Subjectivity," *Journal of Medicine and*

Inspired by French writer Georges Bataille (1897–1962), Foucault's "biopolitics" traces political arrangements and practices through which biopower is exercised over populations and people, acting on their bodies.[130] In social contexts, biopower and biopolitics allow us to examine the specific techniques that, in their multiple forms and contexts, are implemented. These techniques concern human bodies and people's life stories throughout their life span from birth to death. Without being simply critical tools, biopower and biopolitics also encompass the need to identify, unmask, unveil, and name ethically problematic social dynamics. At the same time, biopower and biopolitics should empower resistance and transformative processes, even in the case of AI used in the justice system.[131]

In particular, as a form of social control, biopower seeks to define what is considered as "normal" and socially acceptable by those who are in positions of power. This process of "normalization" neither depends on predetermined "rationales" informed by principles nor manifests a virtuous moral life (e.g., by identifying what it means to be a virtuous human being), nor has any intention to protect and promote the dignity of people and populations.[132] On the contrary, normalizing

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Philosophy 43, no. 4 (2018): 439–68. For an overview, see Andrea Vicini, SJ, "Biopotere," *Aggiornamenti Sociali* 61, no. 1 (2010): 61–64.

[130] See Michel Foucault, *The Birth of Biopolitics: Lectures at the College de France, 1978–1979* (New York: Graham Burcell, 2008). See also Jeferson Bertolini, "O Conceito de Biopolítica em Foucault: Apontamentos Bibliográficos," *Revista Missioneira* 21, no. 1 (2019): 75–91; Isacco Turina, "Vatican Biopolitics," *Social Compass* 60, no. 1 (2013): 134–51; Stephen R. Schloesser, SJ, "*Dancing on the Edge of the Volcano*: Biopolitics and What Happened after Vatican II," in *From Vatican II to Pope Francis: Charting a Catholic Future*, ed. P. Crowley, SJ (Maryknoll, NY: Orbis, 2014), 3–26.

[131] See Antoaneta Roussi, "Resisting the Rise of Facial Recognition," *Nature* 587, no. 7834 (2020): 350–53.

[132] For further developments, see contributions in disability studies. For example, Lennard J. Davis, *The End of Normal: Identity in a Biocultural Era* (Ann Arbor, MI: University of Michigan Press, 2014); Lennard J. Davis, "Introduction: Disability, Normality, and Power," in *The Disability Studies Reader*, ed. L. J. Davis, 5th ed. (New York: Routledge, 2017), 1–15; Lennard J. Davis, *Enforcing Normalcy: Disability, Deafness, and the Body* (London: Verso, 1995); Richard Cross, "Impairment, Normalcy, and a Social Theory of Disability," *Res Philosophica* 93, no. 4 (2016): 693–714; Jos V. M. Welie, "Persons with Intellectual and Developmental Disabilities: Philosophical Reflections on Normalcy, Disability, and the *Imago Dei*," *Journal of Religion & Society*, Supplement Series, 12 (2015): 13–38; Rosemarie Garland-Thomson, "Disability Bioethics: From Theory to Practice," *Kennedy Institute of Ethics Journal* 27, no. 2 (2017): 323–39; Rosemarie Garland-Thomson, "The Case for Conserving Disability," *Journal of Bioethical Inquiry* 9, no. 3 (2012): 339–55; Chandra Kavanagh, "What Contemporary Models of Disability Miss: The Case for a Phenomenological Hermeneutic Analysis," *International Journal of Feminist Approaches to Bioethics* 11, no. 2 (2018): 63–82. See also the ten contributions in the special issue "Engaging Disability," edited by M. J. Romero and M. J. Iozzio, of the *Journal of Moral Theology* 6, no. 2 (2017).

biopower aims at satisfying the drive to control, transforming subjects into objects.

Biopower, and biopolitics as its correlative political expression, foster manipulative attitudes that neither pay attention to moral subjects nor have any consideration or respect for values, with the human potential and the capabilities they express, for cultural, religious, and historical contexts with their specificity,[133] or the social networks to which people belong.

Within the justice system, the uses of AI discussed manifest how new technological tools can support longstanding discriminatory attitudes by expressing biopower in new ways, focusing on individuals, and their social presence and action—in their past, present, and future—to control their bodies and influence their agency.

More recently, other authors have further developed the understanding of biopower. For example, the Italian philosopher Giorgio Agamben applies the notion of biopower to the entire sphere of sovereignty, noting that sovereign power is imposed not only on subjects as holders of rights, but on the "naked life" of people—understood as what is exposed to the violence of that power.[134] The tragic, emblematic example is the Nazi racist dictatorship, which used medicalized power to exercise total control over the body of their victims.

Roberto Esposito, political and moral philosopher, interprets the biopower present in biopolitics by using the category of *bíos*: a form of political life—i.e., a community (*communitas*)—that emerges from the dynamics of "immunization," but that is not determined by them.[135] The willingness of becoming immune to the "other" is the basis of biopower and biopolitics and is evident in how people defend themselves against everything that is "other," because the "other" is perceived as potential threat. To respond and resist, Esposito proposes to avoid what fear would suggest—i.e., total closure to the "other" who is considered an outsider—and to strengthen effectively one's community. For Esposito, *communitas* is an example of a social context shaped by positive dynamics and relationships. *Communitas* manifests the positive results that can be experienced in the encounter between political dynamics and human life, leading to personal and social flourishing—what he defines as *bíos*.

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[133] On AI in diverse cultural and religious contexts, see Antonio Spadaro, SJ, and Thomas Banchoff, "Intelligenza Artificiale e Persona Umana: Prospettive Cinesi e Occidentali," *La Civiltà Cattolica* II, no. 4055 (2019): 432–43.

[134] Giorgio Agamben, *Il Potere Sovrano e la Nuda Vita*, Homo Sacer (Torino: Giulio Einaudi, 1995). See also Georges De Schrijver, SJ, "Giorgio Agamben's Analysis of the Mechanism of Exclusion or the Logic of Sovereign Power," *Budhi: A Journal of Ideas and Culture* 18, no. 3 (2014): 1–18.

[135] See Roberto Esposito, *Bíos: Biopolitics and Philosophy*, trans. T. Campbell, Posthumanities Series (Minneapolis, MN: University of Minnesota Press, 2008).

Finally, rather than describing biopower as an inclusive and all-encompassing notion, American anthropologist Paul Rabinow and English sociologist Nikolas Rose focus on three dynamics. For them, in matters of life and death biopower occurs first when people and authorities state "their truth," second when they foster practices aimed at controlling others, and third when they promote dependence.[136] Biopower is manifested in oppressive discourses and abusive practices.

Social control on our bodies happens also beyond facial recognition and outside the justice system. In India, for example, Aadhaar is "the biometrics-based 'unique identity' number database" designed by the "software billionaire, Nandan Nilekani" as mandatory "for anyone who wants to access the Indian welfare system."[137] Due to its malfunctions and because "enrolling in the database will not spare an impoverished person the effort of opening a bank account, or acquiring a ration card … Aadhaar has played havoc with people's lives and has caused people to starve by preventing them from accessing the government services that deliver their basic right to food."[138] Finally, "The architecture of the biometric data collection system does not account for what happens to their bodies as a result of living on the streets."[139]

The variations in emphases among authors interpreting biopower and biopolitics, as well as this Indian example, suggest the need for urgent and careful discernment. Biopower and biopolitics allow us to examine critically how AI controls citizens and influences the social fabric, from civil society to the justice system. Both concepts can further inspire resistance and transformative practices that empower moral agents striving to promote the common good.[140]

Re-appropriating Human-centered Labor

In *Laborem Exercens* (LE), John Paul II's encyclical addressing human labor, the Pope recognizes how work, a "fundamental dimension" of human existence, characterizes Jesus's incarnation (nos. 26–27) and expresses human dignity, ingenuity, and creativity in the history of humankind, while human beings cooperate with God's creative action in creation (nos. 6, 25).[141] Human work, however, implies "toil

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[136] See Paul Rabinow and Nikolas Rose, "Biopower Today," *BioSocieties* 1 (2006): 195–217.

[137] Arun, "AI and the Global South," 597–98. Aadhaar also targets other vulnerable people—i.e., undocumented Bangladeshi migrant workers—by making it easier to identify and deport them. See also Castelvecchi, "Beating Biometric Bias," 349.

[138] Arun, "AI and the Global South," 598.

[139] Arun, "AI and the Global South," 598.

[140] See Julio L. Martinez, S.J., "Rivisitare il Bene Comune nell'Era Digitale," *La Civiltà Cattolica* II, no. 4078 (2020): 328–41. See also Michael J. Sandel, *The Tyranny of Merit: What's Become of the Common Good?* (New York: Farrar, Straus and Giroux, 2020). I am grateful to Gustavo Monzon, SJ, for this last reference.

[141] See also Patricia A. Lamoureux, "Commentary on *Laborem Exercens* (*On Human Work*)," in *Modern Catholic Social Teaching: Commentaries and Interpretations*, ed.

and suffering, and also … the harm and injustice which penetrate deeply into social life within individual nations and on the international level" (no. 1). For John Paul II, to reflect on work means stressing the dignity of workers, avoiding commodification and inhuman working conditions, and promoting solidarity among workers (no. 8).[142] Work is good for humankind, because it allows human beings to collaborate with God in creative ways. Human labor allows personal and social flourishing as well as human realization.

At the same time, the Pope's approach acknowledges the complexity of working contexts darkened by the evil of exploitation, abuse, forced migration, "the lack of adequate professional training and of proper equipment, the spread of a certain individualism, and also *objectively unjust situations*" (no. 21). Moreover, "human work is *a key,* probably *the essential key,* to the whole social question" (no. 3). Paying attention to the dignity of work, workers, working conditions, and diversified social contexts is an urgent ethical task.[143]

While technological developments should contribute to the humanization of work, for John Paul II "in some instances, technology can cease to be man's ally and become almost his enemy, as when the mechanization of work 'supplants' him, taking away all personal satisfaction and the incentive to creativity and responsibility, when it deprives many workers of their previous employment, or when, through exalting the machine, it reduces man to the status of its slave" [*sic*] (no. 5).

Because the person is "*the primary basis of the value of work*" (no. 6), it is necessary to address what hinders experiencing work as an essential dimension of human dignity, any working condition that harm workers, and the lack of access to work. For the Pope, the Catholic Church should be firmly committed to caring for the poor, being truly the "Church of the poor," aware that:

> The "poor" appear under various forms; they appear in various places and at various times; in many cases they appear as a *result of the violation of the dignity of human work:* either because the opportunities for human work are limited as a result of the scourge of unemployment, or because a low value is put on work and the rights that flow

K. R. Himes, L. S. Cahill, C. E. Curran, D. Hollenbach, and T. A. Shannon, 2nd ed. (Washington, DC: Georgetown University Press, 2018), 403.

[142] On treating human beings as object and "*instrument of production*," see *Laborem Exercens*, no. 7 (emphasis in original).

[143] See Christine Firer Hinze, *Glass Ceilings and Dirt Floors: Women, Work, and the Global Economy*, 2014 Madeleva Lecture in Spirituality (New York: Paulist, 2015); Christine Firer Hinze, *Radical Sufficiency: Work, Livelihood, and a US Catholic Economic Ethic*, Moral Traditions (Washington, DC: Georgetown University Press, 2021).

> from it, especially the right to a just wage and to the personal security of the worker and his or her family. (no. 8)

In the currently dominant capitalist context, repeatedly John Paul II affirms his personalist approach attentive to the social and productive context by stressing that "*the principle of the priority of labour* over capital is a postulate of the order of social morality" (no. 15)[144] that relies on reaffirming and implementing the rights of workers (nos. 16–23) and promoting education (no. 18).

In her commentary on LE, Patricia Lamoureux engages the encyclical's theological anthropology centered on the preeminence of the subjective dimension of work, the priority of labor over capital, workers' rights, and the spirituality of work.[145] In her assessment, "*Laborem Exercens* provides a good foundation and several building blocks for developing an ethic of discipleship in the workplace. The challenge for the future is to construct an edifice that more closely reflects the reign of God, one that promotes justice for workers, fosters solidarity, and enables workers to become virtuous and self-determining."[146] However, "An ethic of human labor requires more attention to social sin and structures than the encyclical provides."[147] A careful and comprehensive view of work able to address the current changes fostered, among others, by implementing AI technology, should engage "social structures that contribute to work that is meaningless or dehumanizing."[148] As she writes, "The challenge is to create the conditions that make it possible to offer work that satisfies the requirement of self-realization and that enables participation in the workplace."[149] Globalization and technological progress amplify this challenge, as Pope Benedict XVI, Pope Francis, and various theologians have stressed.[150]

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[144] See also nos. 12–14.

[145] Lamoureux, "Commentary on *Laborem Exercens*," 408–18.

[146] Lamoureux, "Commentary on *Laborem Exercens*," 420. See also Christine Firer Hinze, "Women, Families, and the Legacy of *Laborem Exercens*: An Unfinished Agenda," *Journal of Catholic Social Thought* 6, no. 1 (2009): 63–92.

[147] Lamoureux, "Commentary on *Laborem Exercens*," 420. On social structures, see Daniel J. Daly, *The Structures of Virtue and Vice*, Moral Traditions (Washington, DC: Georgetown University Press, 2021); Daniel K. Finn, ed., *Moral Agency within Social Structures and Culture: A Primer on Critical Realism for Christian Ethics* (Washington, DC: Georgetown University Press, 2020); Daniel K. Finn, *Consumer Ethics in a Global Economy: How Buying Here Causes Injustice There*, Moral Traditions (Washington, DC: Georgetown University Press, 2019), 61–76.

[148] Lamoureux, "Commentary on *Laborem Exercens*," 420. See also David L. Gregory, "*Laborem Exercens*'s Prescient Critique of Technology," *Journal of Catholic Social Thought* 6, no. 1 (2009): 113–31.

[149] Lamoureux, "Commentary on *Laborem Exercens*," 421.

[150] As examples, see Ilsup Ahn, "The Globalization of Labor and the Limits of Sovereignty: Immigration and the Politics of Forgiveness," *Political Theology* 19, no. 3 (2018): 193–210; *Caritas in Veritate*; Bernard Quintard, "De *Laborem Exercens* à *Caritas in Veritate*," *Bulletin de littérature ecclésiastique* 111, no. 1 (2010): 31–44;

John Paul II's vision of work is far from being realized. Changes caused by AI further compel moral agents and civil society to strive for realizing such a vision, with the personal and social flourishing that it encompasses. As Pope Francis reminds us,

> We were created with a vocation to work. The goal should not be that technological progress increasingly replace human work, for this would be detrimental to humanity. Work is a necessity, part of the meaning of life on this earth, a path to growth, human development, and personal fulfilment. Helping the poor financially must always be a provisional solution in the face of pressing needs. The broader objective should always be to allow them a dignified life through work. Yet the orientation of the economy has favored a kind of technological progress in which the costs of production are reduced by laying off workers and replacing them with machines. This is yet another way in which we can end up working against ourselves. (*Laudato Si'*, no. 128)[151]

CONCLUSION

AI could contribute to promoting the common good of humankind and of the planet. To facilitate this goal, while the current ethical agenda generally proposes principles, further ethical integrations are possible.[152] First, the discernment required to address the tension between an ethic of control and an ethic of risk stresses the importance assigned to the moral agent as well as a dynamic understanding of agency. Such an approach seems to be appropriate to reflect critically on the possible beneficial uses of facial recognition technology in diverse social contexts, while avoiding biased forms of control and engaging in carefully evaluated uses.

Second, deploying AI within the legal and judicial system could benefit from a critical reading of structural dimensions by examining power dynamics centered on human bodies. Revisiting the notions of biopower and biopolitics to stress both their deconstructive and constructive components could guide in identifying racially-, gender-, and class-biased abuses harming individuals and curtailing the integrity of

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Diarmuid Martin, "Catholic Social Teaching and Human Work: The 25th Anniversary of *Laborem Exercens*," *Journal of Catholic Social Thought* 6, no. 1 (2009): 5–17; John A. Coleman, "Pope Francis on the Dignity of Labor," *America,* November 23, 2013, www.americamagazine.org/faith/2013/11/20/pope-francis-dignity-labor; Francis, "Address to Delegates from the Italian Confederation of Workers' Unions (CISL)," June 28, 2017, www.vatican.va/content/francesco/en/speeches/2017/june/documents/papa-francesco_20170628_delegati-cisl.html.

[151] See also Francis, "Address to Delegates."

[152] On AI in healthcare settings and promoting virtues, see Andrea Vicini, SJ, "Artificial Intelligence in Healthcare: Bioethical Challenges and Approaches," *Asian Horizons* 14, no. 3 (2020): 615–27.

the justice system and helping to truly promote justice equally for all citizens.

Third, the transformations AI is progressively introducing in hiring, production, marketing, and workplaces should not harm workers by creating new forms of exclusion, marginalization, abuse, and unemployment. It is urgent to reaffirm the centrality of the person, promote the quality of working conditions, stress the importance of training, converting, enriching, and integrating the workers' skills, together with fostering strong solidarity among workers and in society. These are essential and reachable characteristics of a flourishing marketplace. They could be pursued in innovative ways as an expression of human ingenuity and moral imagination.[153]

Across the planet, colleges and universities have the important role of educating current and future generations by empowering them to make positive contributions in shaping the technological development of AI in the social fabric. Projects and initiatives that foster creative innovation—like human-centered engineering—could lead to developing AI technology in ways that allow to use it for promoting what is good and just: from law enforcement to education, entrepreneurship to the job market. M

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[153] See Patricia H. Werhane, *Moral Imagination and Management Decision-Making*, Ruffin Series in Business Ethics (London: Oxford University Press, 1999). I am grateful to Federico Cinocca for this reference. See also Laura Boella, *Il Coraggio dell'Etica: Per una Nuova Immaginazione Morale* (Milano: Raffaello Cortina, 2012).