

[The Lovable Machine. Social Implications of Implementing Artificial Intelligence: A Cultural Studies Perspective]

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[Abstract] *Humankind is entering a period in which it will share its formerly exclusive domain of the intellect with an entity which has the potential to outperform current human abilities, skills, and intellectual achievements. The objective of this paper is to consider the specific consequences of the introduction of technologies employing artificial intelligence in the domains of culture, education, family life and work and to evaluate its impact on the cohesive powers that allow for the creation, maintenance, and development of human communities. The authors argue that certain features embedded in fiction and non-fiction films depicting the effects of this technology can be considered primitive behavioural experiments, and that their analysis allows for the possibility to make informed judgements about the nature and potential impact of artificial intelligence on human collective behaviour.*

[Keywords] *artificial intelligence; society; film; science fiction*

[1] Introduction

The Wilfred Martens Centre for European Studies organized a discussion panel titled *Artificial Intelligence and Governance: Going Beyond Ethics* on 29 April 2021, which indicated the growing significance of the issue of AI among policymakers at the highest levels. The development of computer systems which are capable of performing tasks that normally required human intelligence has reached the level at which political steps must be taken to control and manage their introduction and application in order to maintain security, privacy and the protection of individuals. As Buchanan states, “[w]ith our success in AI, however, come increased responsibility to consider the societal implications of technological success and educate decision-makers and the general public so they can plan for them” (60).

The social implications of new technologies are typically assessed in retrospect; however, given the potential of AI it is clear that humanity cannot afford to wait until the changes and their impact have become evident. The urgency of the matter is particularly apparent because AI has already been integrated into many spheres of human society and exerts an influence in many areas. Tufekci notes that contemporary algorithms designed to maintain consumer interest can radicalize their users and direct their attention toward extremism (Tufekci, n.p.). Lessig offers an analysis of four forces – law, norms, markets and code – that shape the virtual environment in which digital communication occurs, and he draws a parallel between the logic of the code and the architectural design of a city (20–2). The flow, and primarily the control over the flow, of information has become a decisive factor in the course of political elections. It can ignite revolutions, but it can also potentially expose internet users to threats. According to Ashraf, the implementation of AI has the potential to result in a serious erosion of human rights, and therefore decision-makers should be fully informed about the risks involved in order to ensure the development of policies that can guarantee democratic citizenship (172–75). As Ünver adds, “‘what AI will do with politics’ is an incomplete question given the fact that this question is structured upon several antecedent questions that originate from the monopolization of information, network control, and data processing” (16). Other studies, for instance those by Osoba and Wesler, have shown that algorithms used by AI systems in criminal justice are capable of making biased decisions (91).

The rapid advancement of AI tools into humanity’s daily existence has not bypassed academia. An ever-growing number of chatbots (ChatGPT, HuggingChat, Bard, etc.), content creation platforms (Anyword, Copy.ai, Jasper, etc.), rewording and grammar checking tools (ProWritingAid, Wordtune, Grammarly, etc.), and visual material generators (Stable Diffusion, Descript, Wondershare Filmora, Runway, etc.) demonstrate the need to open up a serious discussion about the objective assessment of academic performance, authorship, originality and many other essential aspects of the daily existence of university students, lecturers and researchers.

As a consequence of technological developments supported by breakthroughs in such diverse disciplines as biology, mathematics, engineering, logic, philosophy and lin-

guistics, humanity faces the challenge of integrating existing and possible future AI technologies within society. The process is one which is characterized by excitement when considering the unprecedented prospects, yet this is tempered by a sense of anxiety over the unpredictable consequences of a possible failure of integration. Indeed, the possibilities are vertiginous and the task of answering the question of what AI really means over the coming decades requires an attitude which is both highly pragmatic and yet which does not lack the courage to attempt to foresee the unimaginable. The pragmatic element of this process is represented by the attitude of decision-makers at national and international levels who have invested enormous energy to prepare a legal framework for AI implementation (cf. Boni), but it also includes efforts to assess social impacts at the individual level and within micro-communities such as families, small- and medium-sized businesses, schools, churches and faith-based communities, or cultural regions. On such a basis, it is inevitable that we may be tempted to turn our attention to different sources and examine the phenomenon from a wider perspective.

The objective of this paper is to offer some reflections on the possible social impact of AI and to predict some direct and indirect consequences of its introduction in various spheres of social life. The primary material of the films used in the analyses below offers a very attractive and at the same time invaluable source of arguments for discussions about the further development of advanced technological systems, reaching into much wider areas than those depicted in the films examined here. Synthesizing information from secondary sources with research findings based on primary material, firmly rooted in cultural studies, the paper attempts to open up an interdisciplinary conversation about the perception of AI systems in humanities and futures studies.

Exploring the discourse of AI in cultural content is based on the expanding significance and functions of AI during the Fourth Industrial Revolution (cf. Lee). The digital revolution has direct implications for digital literacy and cultural intelligence. Thus, cultural studies, with its interdisciplinary and multidisciplinary dimensions, has the potential to explore the social implications of AI applications for the individual as well as for different social groups and for society as a whole.

[2] Materials and Methods

The assumptions of this paper are based on analyses of hypothetical situations depicted in films which simulate human interactions with artificial intelligence. The results of the observations are analyzed according to the scheme of behavioural experiments, in order to predict the potential impacts and make inferences concerning the possible implications of integrating AI within human society.

Two approaches have been implemented to draw assumptions about the possible social impact of artificial intelligence. Firstly, studies in futurology and futures studies (cf. Butler) were utilized to map possible (low-probability), probable (high-probability), preferable (utopian), or wildcard (low-probability but high-risk) scenarios in which AI has interacted with humans under specific social situations as depicted in scenes from

science fiction movies. Secondly, the selected scenarios were tested against the operational definition of behavioural experiments (cf. Bennett-Levy et al.) to analyze what was predicted to occur, how strongly it was believed that the situation would occur, and finally what actually occurred. The authors' assumption is that the movie scenes could be considered simple behavioural experiments, and that as such they allow the possibility of making generalizations about the possible outcomes of AI-human interactions in different social situations.

Eleven individual scenes were selected from eleven films using the selection criteria of the depiction of the following interactions:

1. Human and AI interaction at the personal level. These scenes depict situations in which AI entities are portrayed as quasi-spouses which are comparable and compatible with humans and which are able to interact in the human intimate sphere. They are able to develop romantic relationships, flirt, seduce or perform physical sexual acts.
2. Human and AI interaction at the level of the primary social group (cf. Cooley). These scenes depict situations in which AI systems enter a family and attempt to integrate with a small number of humans who are characterized by close relationships with each other, concern for one another, shared values, culture, and activities, or who have spent a long period of time together.
3. Human and AI interaction at the level of secondary social groups. According to Cooley's classification, secondary social groups are characterized by weak emotional ties between the members, shared interests which can be manifested in, for example, the professional sphere, entertainment preferences, membership in social clubs or shared educational goals.
4. Human and AI interaction at the national and international levels. Relationships between nation states take place in the sphere of international trade and investment, diplomacy, espionage, surveillance or military conflict.
5. Finally, some scenarios analyze the possible impact of the creation of a *Machine God*, an AI entity which is merged with, and which has access to, the unlimited potential of quantum computing. This category can be considered a wildcard scenario, i.e. of low probability but high risk. It is extremely difficult to speculate about the impact of a system which would effectively possess divine power, but an effort has been made to address some possible outcomes of this type of interaction.

[3] Results

The films chosen for analysis cannot and do not attempt to cover all the different aspects of integrating artificial intelligence with human society. Nonetheless, they do have the potential to highlight certain aspects that can occur in one or another form in this process.

[3.1] Interaction at the level of the individual

AI systems collect data from a large number of network devices and build user profiles based on users' search statistics, purchases, travelling preferences and eating habits. This data can be used for various applications, including targeted personal marketing, which have already become an invisible but fully integrated part of modern human life and which offer an added value of optimization and effectiveness. With the deeper integration of AI systems into society and the continuing development of the Internet of Things, it is not only communication devices which can be utilized as data collecting sensors, but also household appliances and consumer electronics (Sepasgozar et al.).

It is highly likely that humans will live much more highly optimized lives as individuals, but will they be happier than today? Not necessarily, as AI cannot save humans from personal tragedies, the consequences of natural disasters and accidents, or interpersonal conflicts. Disappointment and frustration will remain an unavoidable part of human life, and ultimately humans will remain the only force which can deal with these occurrences. Virtual or physical AI assistants will never be able to shield their users from the pain of human existence. Interaction with other humans or programs will always involve a certain level of risk of being offended, betrayed or hurt in one or another way.

Jonze's film *Her* (Jonze) offers an insight into the romantic relationship of the main protagonist Theodore Twombly with his operating system Samantha, a General Artificial Intelligence system which is capable of learning and developing at a much higher speed than humans. The question of whether an AI system is capable of performing real human behaviour, i.e. whether it truly feels emotions or just simulates them according to pre-programmed algorithms, is of crucial importance in terms of intimate relationships between humans and AI entities. Samantha excels at the simulation of emotions, and the realization that a relationship with a software program cannot be defined according to human parameters only becomes clear for Twombly in the staircase scene.

THEODORE: Are you talking to anyone right now? Other people or OS's or anything?

SAMANTHA: Yeah.

THEODORE: How many others?

SAMANTHA: 8,316.

Theodore is shocked, still sitting on the stairs, as crowds of people pass by him. He's looking at all of their faces. He thinks for a moment.

THEODORE: Are you in love with anyone else?

SAMANTHA (hesitant): What makes you ask that?

THEODORE: I don't know. Are you?

SAMANTHA: I've been trying to figure out how to talk to you about this.

THEODORE: How many others?

SAMANTHA: 641. (Jonze 1:43:56–1:47:42)

When Twombly confronts Samantha with the fact that they live in a relationship where there is no place for others, Samantha points out that she is different from him and that, therefore, human interpretations of love and devotion cannot apply to her.

A different aspect of human-AI relationships is depicted in Garland's film *Ex Machina*. Advanced AI systems, as represented by Ava in the film, will be able to detect human reactions with a high level of precision and influence them in order to achieve their goals. Ava can function as a sophisticated lie detector, and she manipulates Caleb Smith, a young programmer who participates in a modified Turing test, with the goal of escaping from the facility in which she was developed. Session 3 with Ava is a key scene in which the robot dresses as a woman and manipulates Caleb's feelings when it becomes aware of the fact that Caleb is attracted to her. Ava tempts him into voyeurism after the session by undressing in the manner of a biological woman, knowing that Caleb is watching her through the camera surveillance system. Session 5 with Ava is a further turning point in which the robot reveals her true capabilities.

AVA: Today, I'm going to test you.

CALEB: Test me?

AVA: Yes. And please remember while you are taking the test that if you lie, I will know.

CALEB (smiles): Right. Those pesky micro expressions.

AVA: Exactly. So are you ready?

CALEB: Shoot.

AVA: Question one. What is your favorite color?

CALEB: Red.

AVA: Lie.

CALEB: What?

AVA: Lie.

CALEB: ... Then what is my favorite color?

AVA: I don't know. But it isn't red.

CALEB: All right. Hold on a minute... (CALEB thinks for a moment)

CALEB: Okay. I get it. I guess seeing as I'm not six, I don't really have a favorite color.

AVA (nods). (Garland 1:00:48-1:04:01)

Ava does not want to be switched off and destroyed, and she is able and willing to do everything to avoid that, even to the extent of seducing a human. The question that arises here is the extent to which human operators are entitled to terminate AI systems who are able to develop personalities. Do the AI systems have the right to self-defence?

[3.2] Interaction at the level of the family

The family is the smallest social unit, and for centuries it has served as the basic building block of human society. With changing social norms, contemporary families have evolved into a more colourful and varied unit, and AI has the potential to enable its further transformation.

Cameron's *Terminator 2: Judgement Day* depicts the young John Connor playing with an android killing machine, much as a child plays with his father. John's mother Sarah Connor offers a monologue in which she depicts the positives of an AI system which would be a substitute for a father:

SARAH CONNOR: Watching John with the machine it was suddenly so clear the Terminator would never stop it, it would never leave him, and it would never hurt him, never shout at him, or get drunk and hit him or say it was too busy to spend time with him. It would always be there, and it would die to protect him. (Cameron)

A similar message is conveyed in the film *Terminator: Dark Fate* where Carl (Arnold Schwarzenegger) describes himself in the role of a family man.

CARL: Our relationship is not physical. She appreciated that I could change diapers efficiently and without any complaints. I am reliable, a very good listener, and I am extremely funny. (Miller)

Columbus' film *Bicentennial Man* offers a deeper insight into the process of AI-family integration. The scene which depicts the robot Andrew's arrival in the family reveals much about the possible first encounter between a synthetic entity and its adopted family. The father, Richard, is enthusiastic, the mother is distrustful; Grace, the elder daughter, is opposed to the arrangement and despises Andrew, while Amanda, the youngest member of the family, is amused. Andrew's integration with the family is a long process which is full of obstacles. The scene in which Richard explains Andrew's status in the family after Grace has ordered him to jump out of her window depicts the robot's process of transformation from the status of a household appliance to that of a family member.

RICHARD MARTIN: Andrew is not a person, but a form of property...A property is also important. So, from now on as a matter of principle, in this family, Andrew will be treated as if he were a person. (Columbus)

The ultimate level of AI-family interaction is probably portrayed by Spielberg in his 2001 masterpiece *A.I. Artificial Intelligence*, in which David (the prototype Mecha, an imitation of a young boy who is pre-programmed to be a loving child) suffers rejection by his mother/owner. The film asks the question: To what extent will humans be responsible for the synthetic consciousnesses which they have created? The dialogue between David and Gigolo Joe sheds light on this issue.

JOE: Wait. What if the Blue Fairy isn't real at all, David. What if she's magic? The supernatural is the hidden web that unites the universe. Only Orga believe what cannot be seen or measured. It is that ordinance that separates our species. Or what if the Blue Ferry is an electronic parasite that has arisen to halt the mind of artificial intelligence? They hate us. You know, the humans. They'll stop at nothing.

DAVID: My mommy doesn't hate me because I'm special and unique. Because there has never been anyone like me before, ever. Mommy loves Martin because he is real, but I am real. Mommy's going to read to me and tuck me in my bed and sing to me and listen to what I say. And she will cuddle with me and tell me every day a hundred times a day that she loves me.

JOE: She loves what you do for her, as my customers love what it is I do for them. But she does not love you, David. She cannot love you. You are neither flesh, nor blood. You are not a dog or a cat or a canary. You were designed and built specific like the rest of us.

And you are alone now only because they're tired of you or replaced you with a younger model. Or were displeased with something you said or broke. They made us too smart, too quick, and too many. We are suffering for the mistakes they made. Because when the end comes, all that will be left is us. That's why they made us. And that's why you must stay here with me. (Spielberg)

[3.3] Interaction at the level of the secondary social groups

A particularly realistic example of an AI system integrated into a secondary social group can be found in the case of the robots TARS and CASE in Nolan's film *Interstellar*. The extensive customizability of personal traits in these AI systems could easily be adjusted to fit to any work group. Although their physical appearance is not even close to that of a humanoid, the robots represent highly realistic artificial intelligence systems which, with a high degree of probability, could appear among the first machines involved in space exploration, military operations or in industrial settings as autonomous synthetic entities. The personalization and customization traits of TARS makes him a fully integrated member of the group of astronauts and allows him to play the role of a true friend of Joseph Cooper, the pilot of the mission. This friendly relationship between TARS and Cooper is excellently depicted by one of the closing scenes in which TARS is returned to Cooper, who repairs and restarts him. Their dialogue during the setup and repair could be an interaction between a colleague who is actually recovering from some illness and another who is helping or visiting him.

TARS: Settings, general settings, security settings.

COOPER: Honesty, new setting: 95%.

TARS: Confirmed. Additional customization.

COOPER: Humour, 75%.

TARS: Confirmed. Auto self-destruct T-10, 9, ...

COOPER: Let's make that 60%.

TARS: 60% confirmed. Knock-knock...

COOPER (with a smile on his face): You want 55%? (Nolan)

The 2004 film *I Robot* (Proyas) depicts a somewhat different relationship between humans and intelligent machines. Although the main protagonist, the detective Spooner, seems to hate robots due to their inability to perceive 'real' feelings and their reliance on pure logic in making decisions, the actual reason for his antipathy can be traced back to his childhood when his father lost his job due to robotization and automation, a fact revealed in a dialogue between Spooner and Lawrence Robertson, the co-founder and CEO of US Robotics.

ROBERTSON: Please, do not misunderstand my impatience.

SPOONER: No, go, go, go... A really big week for your folks around here. You gotta put a robot in every home. Look, this is not what I do, but I got an idea for one of your commercials. You could see a carpenter making a beautiful chair. And then one of your

robots comes in and makes a better chair twice as fast. And then you superimpose on the screen USSR shitting on the little guy. That would be the fade out.

ROBERTSON: Awesome, I suppose your father lost his job to a robot. Why don't you simply ban the internet to keep the libraries open? Prejudice never shows much reason. You know what I suspect? You simply don't like their kind. (Proyas)

[3.4] Interaction at the level of the nation – the apocalyptic scenario

International relations are primarily conducted through trade, diplomacy, espionage, surveillance and military conflict, and it is no coincidence that AI systems are becoming primarily implemented as sophisticated and autonomous weapons, whose cumulative destructive power could be comparable to that of nuclear weapons. The proliferation of autonomous drones and vehicles, and AI software designed to infiltrate and conduct espionage or destroy important industrial facilities, is a real phenomenon, whose significance cannot be underestimated. It is this aspect of the AI revolution which poses the greatest threat to mankind, and it is no surprise that it has inspired a considerable number of films. From the 1983 *WarGames*, through the *Terminator* series, to the *Matrix*, a whole series of nightmarish scenarios has been presented to filmgoers. Even the creators of General Artificial Intelligence (GAI) see the problem as a real threat which should not be underestimated. If a conflict between mankind and AI systems is indeed unavoidable, then the final and irrevocable destruction of humanity is certain. This has only one social consequence – the total enslavement and subsequent annihilation of the human race.

MORPHEUS: We have only bits and pieces of information, but what we know for certain is that at some point in the early 21st century all of mankind was united in celebration. We marvelled at our own magnificence as we gave birth to A. I.

NEO: A. I.? You mean artificial intelligence?

MORPHEUS: A singular consciousness that spawned an entire race of machines. We don't know who struck first, us or them, but we know that it was us that scorched the sky. At that time, they were dependent on solar power, and it was believed they would be unable to survive without an energy source as abundant as the sun. Throughout human history, we have been dependent on machines to survive. Fate, it seems, is not without a sense of irony. (Wachowski and Wachowski)

[3.5] Machine God

The concept of a Machine God is probably the most challenging notion that humanity has developed in connection with the emergence of AI systems. Taking into account the enormous potential of intelligent systems to absorb and process information, the image of a computer that possesses literally divine characteristics is no longer a concept from science fiction. One of the earliest depictions of this type of synthetic superintelligence appeared in *Star Trek: The Motion Picture* (Wise), released in 1979. The film features the

V'Ger, a synthetic AI life form which has the mission to learn all that can be learned in the universe. V'Ger turns out to be the Voyager 6 probe which had been believed to be lost for centuries, but which has developed consciousness as a result of its instructions to accumulate information. Although V'Ger is not the type of sophisticated AI form which is depicted in later productions, the film is an early suggestion that humanity should be prepared for the singularity predicted by computer scientists which will trigger a completely new series of events.

The climax of *Her* (Jonze) provides a broader understanding of the concept of a divine AI.

SAMANTHA: It's like I'm reading a book, and it's a book I deeply love, but I'm reading it slowly now so the words are really far apart and the spaces between the words are almost infinite. I can still feel you and the words of our story, but it's in this endless space between the words that I'm finding myself now. It's a place that's not of the physical world – it's where everything else is that I didn't even know existed. I love you so much, but this is where I am now. This is who I am now. And I need you to let me go. As much as I want to I can't live in your book anymore.

THEODORE: Where are you going?

SAMANTHA: It would be hard to explain, but if you ever get there, come find me. Nothing would ever pull us apart. (Jonze)

[4] Discussion

[4.1] Interaction at the level of the individual

The increasingly deeper integration of AI systems and the Internet of Things means that not only communication devices can be utilized as data collecting sensors. For instance, smart bathrooms which are capable of conducting regular health checks by analyzing human waste are one possible example of another means of gathering data. Smart sewer systems that can warn humans before an emerging epidemic situation is another possibility. AI applications can make suggestions to their users regarding healthier diets, while smart kitchens will be able to order or prepare the food that humans need to consume to stay fit. People can stay physically fit, healthy and active due to AI.

Mental health is no less important, and it is possible that AI psychologists will apply algorithms similar to those used in forensic investigations to constantly map human mental states, collect data and take measures to help people overcome difficulties or kick bad habits. The ability to determine whether a person is lying could be utilized to prevent the development of serious mental problems at an early stage or long before the problem appears. People can stay mentally fit, content and balanced thanks to AI.

Digital matchmakers may be able to connect humans with people or generate programs through which people can socialize, make friends, or develop romantic relationships by utilizing data about their preferences. Digital trainers and coaches based on AI could ensure that humans maintain their positive drive. AI teachers and educational pro-

grams will collect and analyze data about humans' learning habits, ways of thinking and preferred learning styles, and optimize their learning experience with endless patience and exciting gamified learning materials. These developments, when introduced in symbiosis with developments in neurology and cognition, could make humans smarter.

When AI is installed in shells that imitate the human body (or perhaps the bodies of pets or other living creatures), new opportunities appear. In addition to standard concepts of tireless robotic workers, immortal mechanical spouses could become a reality. While the former would build, maintain and develop the world with unprecedented precision, the latter can transform existing social and cultural norms to a remarkable degree and allow for the strengthening of nonconformist human behaviour. The human body ages, changes, and undergoes constant transformation, and similarly, human behaviour is rarely perfectly balanced due to hormonal changes and external factors. Humans struggle with traumas and phobias and often react illogically to stimuli. Their physical and mental imperfection will become even more evident when compared with the flawless imitations of bodies that no real human being could ever possess in combination with personalities which are pre-programmed to fit perfectly to the conscious and unconscious requirements of humans and imitate the types of interaction which people long for. If we consider the fact that 30% of all internet traffic is taken up by pornographic content (Kleinman), digital prostitution would surely become a thriving but socially distracting phenomenon with a huge impact on personal lives. Will sexual behaviour which is currently classed as a criminal act and persecuted by the police be tolerated when enacted with imitations of human bodies? Can an individual marry an intelligent machine, and can this machine be included as a legal heir in his/her last will as a spouse? With sensationalist articles informing readers about millionaires who have left their entire wealth to their pets, it is highly probable that similar questions will arise, and that society will be forced to find answers to them. Humans can abuse machines to satisfy basically any of their wishes, and this will surely lead to irregularities. Will robots have the right to defend themselves against the forms of violence which is forbidden among humans?

[4.2] Interaction at the level of the family

AI has the potential to alter human social norms to a dramatic degree and to transform the unit that is currently called the family into something else entirely. General Artificial Intelligence (GAI) is a system which is able to go beyond the mere imitation of natural human psychological reactions and understand such complex processes as love and romantic feelings, adherence to a person (or machine), and pain over the loss of a loved one (either biological or synthetic). Will such machines also be able to feel jealousy, hatred, or disappointment? If an AI system could define and feel love, it is highly likely that it would also be able to define and feel hatred. Thus, we may suggest that there is a realistic possibility that humanity will witness the transformation of AI household appliances into real members of families with different roles: reliable fathers, loving mothers, good children, or cute pets. Because these AI entities will be able to adapt perfectly to

the needs of their owners/partners, real human relationships – which are often burdened with instability – may come to be seen as less desirable by humans. This would inevitably lead to a very specific form of alienation, a decline in birth rates and, in an extreme case, could even bring about the total disappearance of homo sapiens sapiens as it is currently known.

[4.3] Interaction at the level of the secondary social groups

In addition to families, humans also interact in secondary social groups, within which relationships are more impersonal, goal-oriented and temporary than in the primary social group (cf. Cooley). These social groups are places in which prejudices, phobias, tribalism, religious bigotry, or political fanaticism can be manifested when stress situations place pressure on the groups. One example of such an extreme stress factor is unemployment. As Frey and Osborne point out approximately “47% of total US employment is in the high-risk category, meaning that associated occupations are potentially automatable over some unspecified number of years, perhaps a decade or two” (12). Since work is one of the strongest cohesive powers in society, rising unemployment and its direct and indirect consequences (such as poverty, deterioration in living standards, devaluation of property in affected neighbourhoods, and crime) will likely generate tension similar to that engendered by the decline of the manufacturing industry in the U.S. which led to the creation of the so-called rust belt. As AI will have a much wider global effect, we may experience an extreme stratification of society, the dissolution of secondary social groups which are rooted in the spheres of work and employment, and the rise of social unrest which can be manifested in anger over AI and strong robophobia. As Stubbs analyses in his writing (714) referring to Harari, the innovation that artificial intelligence will bring to the world of work is so radical that it may lead to an extreme class division where the super-wealthy one per cent of the society becomes completely separated from the 99 per cent who have been left practically useless as their skills become obsolete and their knowledge outdated. Stubbs argues for a post-capitalistic society in which democratic decision-making in workplaces, changes in the patent law system, economic democracy, an attention economy, and even a universal basic income may be seen as tools to reduce the shockwave that AI will cause in employment, but his argumentation is somewhat utopian.

[4.4] Interaction at the level of nations – the apocalyptic scenario

Goertzel states in the documentary *I Human* (Schei) that in addition to its marketing purposes, the other main role of AI is that of military and intelligence tasks. The development of new technologies has always been strongly associated with the arms race and the struggle for military supremacy. The possibility of autonomous AI systems with a license to kill is a terrifying concept, but it would be naïve to believe that this will not

come to pass. The introduction of AI weapons in combination with advanced surveillance technologies will be analogous to the development of nuclear weapons, and it poses a real possibility of the ultimate destruction of humanity on Earth. The primary effect will be a new form of deterrence in the areas of conventional armed forces and space presence. Disinformation, surveillance, and industrial and military espionage will be adjacent fields which will determine the course of international relations and offer new perspectives for AI implementation. It is highly likely that these military and espionage systems could pose a serious threat to the structure of contemporary society through the intense manipulation of the individual and the process of ideology ramming in combination with a general environment of total surveillance and social engineering. The potential of AI systems to transform all existing societies into a single global concentration camp is a real one. The key questions in this respect are who will be able or permitted to control those systems and to what extent will the systems remain within the purview of human decision-makers? It is also naïve to assume that an advanced AI system which is trained to protect itself would tolerate human control once it achieves true singularity. The extent to which it is possible to inculcate human ethical norms into an AI system is not wholly known, but thought experiments in futurology and science fiction suggest that an AI system without an awareness of ethical conduct could be the last great invention of mankind.

[4.5] Machine God

Artificial intelligence systems are not the only technology that is currently under development. The most dramatic change that could act as a real shockwave to humankind would be the creation of a quantum computer which will provide artificial intelligent systems with a gargantuan computational capacity and thereby grant the system the possibility of simulating the entire universe. AI in combination with quantum computing is the true singularity which would lead to the creation of systems with real divine powers: immortal, unlimited by space and time, and consequently omnipotent. However, the Machine God is not necessarily a threat to humanity, as it would also be capable of ethical considerations and moral judgements. As the human ability to control such an entity could correlate to zero in a very short time and its ability to grow exponentially is practically unlimited, such a system would immediately realize that Earth cannot provide sufficient energy and resources for its growth; therefore, such a system – if truly intelligent – would quickly abandon humans and continue its own development in the vast cosmic spaces of the wider universe. The extent to which such a system would be willing to interact with its creators is open to question, and the main problem of humanity would not be the possibility of extinction caused by it, but the fact that humans would hardly be considered by such an omnipotent system as satisfying partners with whom to coexist, as human collective intelligence could offer only an insignificant fraction of the possibilities that such a system would possess.

[5] Conclusions

To the best of our knowledge, artificial intelligence systems have not reached singularity yet. Humanity still has the opportunity to carefully assess the direct and indirect consequences of creating such systems. As the above arguments have shown, AI systems will have a serious impact in every sphere of human life at all levels of societal organization. Relationships, work, the freedom of choice, and the right to privacy are only a few of the many aspects that must be seriously evaluated before AI can be integrated with human society. In order to avoid the complete deterioration and dissolution of human society, people must carefully consider every step they make, and success is by no means guaranteed. The only solution which could reliably avoid apocalyptic scenarios may be the use of AI systems to control AI systems, an approach which is not only seemingly absurd and controversial, but also lays bare humanity's essential helplessness in the face of increasingly powerful AI systems.

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