

# **From Artificial Intelligence to Artificial Sociality: Outlooks for a New Social Analytics**

Andrey V. Rezaev<sup>1</sup>

## **Abstract**

There is an exponentially growing literature on AI that crosscuts several different fields. However, much of this material is widely scattered throughout professional computer sciences and engineering literature and varies considerably in terms of level of difficulty and substantive application. Social sciences are way behind computer scientists in surveying the reality of AI progress. However, in recent years, scholars who study society have started to look at the widespread penetration of AI instruments in the reality of societal life. This paper develops further the discussion by introducing new visions and conceptual perceptions. It starts with an explanation that AI appears in the mind of human beings as a combination of the three Ps: Phenomenon, Problem, and Phrase. The author then introduces his definition of AI and formulates five fundamental characteristics this definition underlines. After a short literature overview, the author develops his main arguments about artificial sociality (AS), new social analytics, and methodological cross-disciplinarity (potentially a-disciplinarity) in exploring AI. In what follows, the principal question is “What does AI bring to society ?” The author reviews the correlation between AI and online culture. He points out that in the short term, AI, AS, and online culture will not change human nature, however, they will change the way people are organized and society is structured. The author argues that the task for scholars is to learn how

---

<sup>1</sup> Distinguished Research Professor/Director International Research Laboratory “TANDEM”, Faculty of Sociology, St Petersburg State University, Russia  
Corresponding Author: Andrey V. Rezaev, E-mail: rezaev@hotmail.com  
[https://doi.org/10.6284/NPUSTHSSR.202312\\_17\(4\).1](https://doi.org/10.6284/NPUSTHSSR.202312_17(4).1)

to orient AI and AS to augment humans, enhance humane in social structures, and socially organize inevitable *human-machine interdependence*. The value alignment problem and ‘collateral damage of capitalism’ during the time of AI advancement are discussed in this regard. In conclusion, the author emphasizes that Humans are not Computers, and Computers are not Humans. The primary deficiency of hitherto-existing views on AI is that scientists look for similarities between what and how computers and humans are doing. However, the real need is the opposite: science must define what are the *differences* between humans and machines, what makes them unique, and how to enrich humanity via machines and AI.

**Keywords: Artificial Intelligence, Artificial Sociality, Social Analytics**

## 1 INTRODUCTION

The widespread penetration of Artificial Intelligence (AI) in everyday life of society, the exponential growth of research and publications about AI in computer sciences, natural sciences, and engineering, contrasted with the sluggish and precautious efforts to examine AI in the social sciences and humanities is not a problem, today. It is a fact. What to do about it is a problem.

In recent years, there has been a new wave of reflection on and criticism of artificial intelligence technologies spreading in society's everyday life. The massive diffusion of AI instruments in peoples' lives raises a host of conceptual and methodological issues for sociology and, more generally, social sciences. Among these are: should social scientists interested in AI start assessing policies and institutions that promote AI in everyday life from abstract philosophical theories of AI? Or should AI theories, developed already to the level of theory in computer sciences, draw on existing experience and empirical evidence regarding the functioning of different social structures and institutional arrangements to avoid merely issuing normative demands 'in a vacuum'? Or should AI scholars explore new phenomena based on a new multi-disciplinarity platform? What is the appropriate unit of analysis and assessment of AI development in society?

It makes questions such as these more pressing by the plausible thought that the social sciences should have among its aims the formulation of proposals that latch on to and can influence broader debates in society about the desirable progress of AI. It raises the further question of how social sciences and humanities among parties involved in studying AI can realistically have such an influence.

We proceed from an obvious premise - it is reasonable to think that AI will be part of the real world for human beings in the foreseeable future. It is also reasonable to postulate basic principles for reasoning on AI and to formulate a rationale for scholarly examinations of the AI phenomena.

## 2 WHAT IS AI?

AI appears in the mind of human beings as a combination of the three Ps: Phenomenon, Problem, and Phrase (or a concept)<sup>1</sup>.

As a *phenomenon* of everyday life, AI cannot be revealed in any other way but in the form of materialized (tangible) products/devices. As such, these devices have a double determination – technical and social. On the one hand, AI appears as a technological device designed to solve a task that is impossible for a human. On the other hand, AI does not exist only in a technical environment. Technologies initially focused on instrumental tasks become the environment and participants in human interactions. We call this tendency *artificial sociality* (AS).

As a research *problem*, artificial intelligence: (1) raises philosophical (worldview) questions; (2) in a new way characterizes social reality; sheds new light on the specifics and potentials of social reality; calls to reconsider the mainstream visions of social reality; 3) appears differently in different sciences. For natural and engineering sciences, the problems of artificial intelligence are related to solving technical and instrumental problems. For sociology and other social sciences, the question of AI is essentially marginal, a side issue. In philosophy, as in humanities in general, AI is discussed in relation to worldview problems resolved differently in different historical epochs and different intellectual traditions.

As a *phrase* (concept) in scholarly literature, AI is not yet defined to have a generally accepted meaning<sup>2</sup>.

However, scholars must agree on defining AI to proceed in rational thinking about AI implementation into the reality of human lives and societal development.

AI is not an objectivated thing, but an ensemble of formalized rules. The appearance of AI in daily activities as a tangible product should not mislead scholars in determining its substantial nature.

At this juncture of scientific discussions, we have all the foundations to define AI as follows<sup>3</sup>.

---

<sup>1</sup> In more details, we developed our position in (Rezaev, 2020).

<sup>2</sup> For a vivid example of this statement, see the recent article on the definition of AI (Wang, 2019) and the subsequent discussion organized in this issue of the *Journal of Artificial General Intelligence*.

<sup>3</sup> In the attempt to present our working definition of AI we follow the paths proposed by Russell and Norvig (2016).

**Artificial Intelligence** is an ensemble of rational, logical, and formalized instrumental rules developed and coded by human beings that organize the processes and activities to emulate rational/intellectual structures and fabricate and reproduce goal-oriented practices as well as the mechanisms for constructing further coding and decision making.

Five fundamental characteristics underline our definition.

First, AI is an artifice, a product of human beings, it is not something transcendental or inherently *a*-social.

Second, the substantial nature of AI is not something objectifiable as a material gimmick; AI's essence manifests itself as a set of rational and logically formalized rules but not as an attained appliance *per se*.

Third, AI is a set of instrumentally coded rules.

Fourth, an instrumentally coded set of rules is oriented to generate/yield an appliance/product that imitates human beings' intellectual activities.

Fifth, emulated intellectual constructions make it possible for AI to further independently code and make intellectual or goal-oriented decisions, not necessarily with assistance or control from human beings.

### 3 HOW TO STUDY AI?

#### 3.1 Literature Overview

Such a wealth of various work has been done in AI so far that we cannot describe it in any substantial depth here. However, many excellent overviews of recent work in the field have already been written, and beautifully so (Boden, 2016; McCorduck, 1979; Ford, 2018). For readers familiar with modern professional literature on AI who desire technical surveys of current issues, we highly recommend Russell and Norvig (2016).

There is an enormous flow of research publications dealing with AI. However, the 'Big Three' dominates in this flow: computer science, cognitive science, and philosophy (see Rezaev, Tregubova, 2019). Most recently, in the Western world (especially in the US), there is a surge of publications coming from the humanities and critical theory. These publications concentrate on social justice, privacy, and ethical issues.

Simultaneously, well-established fields such as science and technology studies (STS) and communication theory have started to claim quite a strong interest in examining the reality of AI technologies. These disciplines have already produced some promising theoretical and methodological approaches (Woolgar, 1985; Collins, 2018; Lee, Larsen, 2019; Ruppert et al., 2013; Esposito, 2017b; Floridi, 2015) and some bright empirical investigations of AI phenomena (e.g., Ziewitz, 2016; Beer, 2017; Esposito, 2017a). However, the monopoly on AI research within the social sciences framework that STS and communication theory explicitly or implicitly try to commend is not justifiable. As for another matriarch of the social sciences – sociology – she appears to be everywhere and nowhere in this publications pool. However, since the 1990s, sociologists have started developing specific sociological approaches to studying AI and AS (Wolfe, 1993; Joerges, 1990; Collins, 1992; Carley, 1996; Couldry, 2015; Etzioni and Etzioni, 2017).

To characterise most largely the pool of publications on AI, we will make two generalisations with two pairs of directions. On the one hand, computer scientists and engineers insist on ‘Order and Progress’, and the representatives from the humanities concentrate on freedom and equality. On the other hand, we have theorists who focus on their favorite theories, conceptual disputes, and empiricists for whom the most important thing is to make everything work and everything has to be confirmed by survey data.

Another critical issue is the interrelation of AI research in academia and business. The border between them is blurred today: corporations create strong research departments that publish extensively, while universities develop MA and PhD programs in cooperation with business organisations. Moreover, within the universities, there is a differentiation between research teams focused on academic and applied science. Both tend to believe that their kind of science is the best (Hoffman, 2016). However, it seems that corporations ultimately win – they manage to develop both science and business due to various kinds of resources. With few exceptions (such as Stanford University and MIT), universities try to keep up with corporations but are getting neither academic discoveries nor commercial products with incomparable volume and quality.

Today, a notable trend in AI research development, which brings together scholars' efforts from academic disciplines and researchers from business organisations, is the rise of a human-centered AI. In recent years, large human-centered AI research centers (HCAI) have been established in the US<sup>4</sup> and Europe<sup>5</sup>. The fundamental idea for HCAI is to place the good of human beings and humanity at the center of AI technologies development, to adjust technology to people, not people to technology.

Finally, a few words about AI research in Russian literature: here, we see all the same development trends, adjusted for some delays and local specifics.

First, in Russia, a similar ratio of academic and business research in AI is observed: for example, the largest conference on AI issues in 2020 was organised by a corporation<sup>6</sup>. Academic events against this background look modest, although quite worthy.

Second, Russian scientific literature is dominated by the same 'big three' disciplines that took shape in the framework of Soviet science: computer science ('informatics'), cognitive science / neuroscience, and philosophy.

Third, there is a selective reception of ideas, approaches, and methods developed in Western Europe and North America in the social sciences. Certain areas of STS and actor-network theory are prevalent (Utekhin, 2012; Zemnukhova, 2018; Sivkov, 2018; Kuznetsov, 2020), as well as micro-sociological approaches (Khonineva, 2017; Maksimova and Glazkov, 2018; Klowait, 2018; Korbut, 2018). Besides, several publications discuss the problems of inequality connected with the development of AI technologies (Kapeliushnikov, 2017; Nim, 2018), and we believe that their number will grow, following the general international trend.

### **3.2 A New Social Analytics for Artificial Sociality**

In 2018, during the International Sociological Association (ISA) congress in Toronto, we asked ourselves: are sociologists ready to analyse artificial sociality? (Rezaev, Tregubova, 2018) We started the research, which we thought would continue

<sup>4</sup> See, for example, The Institute for Human-Centered AI (HAI) at Stanford University. Website: <https://hai.stanford.edu> (accessed: 31.08.2021), and MIT Sloan Office of Media Relations (2020) 'Human-Centered AI': How can the technology industry fight bias in machines and people? Nov. 19. Website: <https://mitsloan.mit.edu/experts/human-centered-ai-how-can-technology-industry-fight-bias-machines-and-people> (accessed: 31.08.2021).

<sup>5</sup> For more details see: European Network of Human-Centered Artificial Intelligence. Website: <https://www.humane-ai.eu> (accessed: 31.08.2021), and Human-Centered AI Lab (Holzinger Group). Website: <https://human-centered.ai> (accessed: 31.08.21).

<sup>6</sup> See: Artificial Intelligence Journey. Website: <https://ai-journey.ru/en> (accessed: 31.08.2021).

within the ISAs forums framework. Unfortunately, pandemic has disrupted plans, and we cannot present the results of the new study here. However, we can ask: what has changed in three years ?

In 2018, the answer to the question about sociologists' readiness was negative: the interest of social scientists in AI and AS was due more to the peculiarities of their biographical trajectories than to institutional factors. If we had the opportunity to conduct research during the forum in 2021, we would formulate the following hypothesis: sociologists' interest in AI is increasing, but this is happening under pressure from outside: from applied research on markets and organisations and critical research on oppression and inequality. In other words, recalling the 'clichés' of the Soviet era, sociology is either the servant of capitalism or quite the opposite.

The situation with the pandemic has made this state of affairs obvious. Social scientists are asked for recommendations on optimising the effectiveness of online interactions and making predictions concerning public opinion about using new technologies and novel ways to regulate everyday life. Simultaneously, they are expected to criticise errors, distortions, and biased decisions of algorithms, which, presumably, lead to an increase in class, racial, gender, etc. inequality under capitalism.

If our hypothesis is correct, then the current situation can be interpreted optimistically (sociologists are needed !) and pessimistically (sociologists are expected to do what they do not want or cannot do).

We are cautiously optimistic, but with a caveat: we need to understand what social scientists can and cannot do.

Social analytics today is designed not to predict but to pose problems. Before the development of artificial sociality, sociologists could at least offer solutions to problems in the industrial era. Today, this is not the case because the principle is violated. We do not know what the machine does to human interaction, and we cannot predict its actions. One way to see this is that AI does not understand the existential dimension of human life: pain, loneliness, death, birth, the joy of human interconnectedness, and social intercourse.

Today's AI technologies are designed to overcome time. AI designers are primarily interested in technology's ability to shrink space and time, i.e., AI is viewed only instrumentally, that is, as being merely the ability to decrease by degrees the

‘distance’ separating the desiring subject and the object of desire, and to do so without in any significant way altering the subject or the object. However, we are not confident that this collapsing of time and space does not alter human existence as a social being.

We are sure that most readers have some idea about the development of AI technologies and their impact on people’s lives. In everyday life, we are constantly confronted with AI technologies and their understanding in social media, mass media, popular science literature, movies, etc. Simultaneously, as social scientists, we find ourselves locked in a disciplinary framework that surprisingly little can help in understanding the problems of AI and AS. What turns out to be relevant to sociologists interested in AI turns out to be ultimately borrowed from critical theory, STS (including actor-network theory), communication studies, or some combination of these. Simultaneously, the importance of social problems associated with the spread of AI today does not cause doubt even among representatives of the technical sciences.

It seems that the social scientist in AI research today knows what s/he does not know, and this is his/her strength and weakness. On the one hand, our task is to understand and accept this; on the other, to take a step forward, to know, from the obvious to the non-obvious.

A few years ago, we wrote: what can be more social than social intercourse, understood as establishing relations and emotional interconnections between people? Today it is time to ask: what can be more social than artificial intelligence and artificial sociality? The purpose of both problems is to encourage sociologists to address issues they overlook. Today, we combine these two questions under the heading of artificial sociality research.

Hence, the key question for social scientists is this – ‘How do you measure artificial sociality?’ We need to learn how to measure, compare, and test the effects of AI on human society and the interaction between humans and machines. Today’s tasks are to analyse people’s interactions with AI and not explore artificial sociality in the old ways, relying on the old terminological apparatus. Here, the need for interdisciplinary and potentially anti-disciplinary research on AI and AS becomes clear.

### **3.3 Interdisciplinarity in AI Research**

The idea of AI as a technological innovation for social well-being was introduced in the mid-50s of the last century by a group of scholars who were not oriented in their

vision toward one specific discipline (Winograd, 1991; McCorduck, 1979). As an object of scholarly interest AI from the very beginning was and could be considered only as a multidisciplinary and potentially a/anti-disciplinary object. AI technologies appear to be a prominent aspect of contemporary social change. Because it is embedded in and influenced by different social practices, it cannot be adequately understood from a single professional standpoint or a single disciplinary framework. The history of AI development shows that the more stress on interdisciplinarity in research and design, the better the outcomes.

However, in today's scholarly world, every discipline creates its objects for study and terminology to establish the borders. For example, although scholars use the common term 'nature' in biology and chemistry, the meaning is quite different. Indeed, 'nature' is a core notion for organizing discussion in science, but each discipline has constructed its view on how to explain what nature is and how it functions. What biologists understand by nature does not necessarily fit what chemistry or physics define by nature. Disciplinarity turns out to be a real impediment when scholars from different departments meet to resolve a scientific problem, even if it is in the domain of so-called hard sciences. It also applies to 'cross-talk' in social and behavioral sciences. Interdisciplinary research is more often advocated than genuinely practiced – perhaps because it is challenging and resource-intensive and because it requires researchers to venture out from their usual comfort zones and work together in teams with new theoretical agendas and conceptual structures.

There is a consensus in commentaries of social scientists that interdisciplinarity does not necessarily replace the disciplines but indeed depends on disciplinary knowledge for its further development (Frodeman, 2010). For example, Neil Smelser insists that “the boundaries of most disciplines have become so permeable and indistinct, and so much exportation and importation have occurred that if one ranges widely in his or her discipline, one is being in effect interdisciplinary” (Smelser, 2003: 653).

It shows above all that the idea of disciplinarity never ceased to strengthen.

In other words, since its inception, AI technologies have been in constant movement between researchers and practitioners, between science and policy, and between different disciplines. Therefore, trans-, inter-, multi-, and crossdisciplinarity –

which continue to be in vogue today - have resulted from a long historical construct, to which the sciences dealing with AI bear witness.

Here we are at the very beginning of the journey. AI must help scholars and humanists merge into one perspective to find new ways of seeing AI and what it is for human beings. It can be done only and if multi-cross-inter disciplinary methodology evolves into a non-disciplinary structure. Further progress in AI research and design calls for an *a-disciplinary* approach<sup>7</sup>.

## 4 WHAT DOES AI BRING TO SOCIETY ?

### 4.1 AI and On-line Culture

With the development of online culture, AI technologies penetrate the daily lives of people of all ages and different social statuses on all continents. Online culture is both an intensive info-instrumental culture and a culture of existential atomization and loneliness. Human loneliness in online activities is intensified by offering the self as the primary source of enjoyment and the only source of agency worth validating<sup>8</sup>.

Online culture changes reality and monetizes social interactions. It translates existential questions into a discussion of social problems and the release of collective emotions. Can a person be able to remain himself/herself in the situation when the machines regulate and mediate communication? Will human-machine-interdependence give humans room for privacy?

The question is not in people's access to algorithms - the problem is whether a person can remain solitary and be herself/himself in privacy when the machines organize social interactions.

AI, AS, and online culture will not change human nature, at least in a historically short period. However, it is AI that will change the way people are organized. It is AI that will foster new possibilities for constructing and shaping society, affecting, and simulating/mimicking the system of social relations. The forms and methods of organizing social relations will continue to change through information flows and modes and channels of communication. The intensity of human-machine interaction,

---

<sup>7</sup> We also address the reader to the discussion of anti-disciplinary issues and the new social analytics of AI in our previous study (Rezaev, 2020).

<sup>8</sup> Spectacular examples you will find in (Turkle, 2011).

its content, and, accordingly, the conditions for the formation of the prevailing values and ethical norms in society will change.

One of the main fears associated with the development of AI is the loss of jobs. Aristotle also wrote about machines that could replace human labor (in his time – slaves' labor). Why were such prospects not a matter of concern in Antiquity? Isn't it because modern life is organized around professional activities that bring a) an income, b) self-respect and respect for others, and c) a particular way of life? The ideal type of modern professional is a virtuoso - a narrow specialist (not a master, sage, or community member). The figure of a specialist is opposed by a social activist (volunteer) model who implements abstract principles of justice. The entry of AI into the labor markets leads to the fact that both the specialist and the activist are no longer needed: AI will be useful in solving narrow tasks and at the same time feed the hungry, protect the humiliated, and enlighten the illiterate. What are the remaining charges for people to go through with then?

Therefore, such questions as “What will we have to change in the system of ‘human-algorithm interaction’ in the future?”, “How to organize auditing of AI entrance in real life of human beings?”, “Who is the owner of AI technologies?” are more essential than the question “What rewards AI bring to society?”<sup>9</sup>. AI technologies make the ownership of the machine and the ownership of intellectual property crucial. We have machines, algorithms, and an increasing number of patents, so the question of who controls the algorithms and owns the patents and the income flow associated with these properties becomes the first question for technology, economy, and politics. The public regulation of AI ownership becomes the first question for society. The real problem for Human Centered AI is how to define the areas, and places where humans do not have to touch with artificial intelligence, of course, if there are those. Suppose there are such areas that would coordinate and regulate search and guide the further development of AI. So, the primary task is to find unquestionable taboo areas and how to enforce the taboos for AI.

## **4.2 Human-Machine Interdependence**

The point for scholars is to learn how to orient AI and AS to augment humans and enhance humane in social structures and institutions, to foresee, and socially organize

---

<sup>9</sup> See also, (Etzioni, Etzioni, 2017).

inevitable *human-machine interdependence* and prevent its transformation into something a-societal, to advance society further based on social relations.

The point is not to replace “imperfect” human activity with perfect AI. People, their life, health, and development are the meaning and ultimate goals of human coexistence in society. Replacing a person with a system of technological tools makes the existence of society meaningless. Only when a person is at the center of socio-political and cultural processes can the gap between people and technology be bridged in the center of society's attention. It is not that human-made technologies are developed to manipulate people, but people manage technology for society's benefit.

As a product of a human being, algorithms and data embed historical practices and social biases. You cannot rely on the machine because it is based on data and algorithms.

Recent research shows that there is an issue of algorithmic bias (O’Neil, 2016). In the reality of human-machine-interdependence the algorithmic bias imposes systemic threats. It is revealed in problems of how human biases interact with the machines’ biases. How do biased humans interact with an algorithmic bias, and will this impose systemic threats to AI technologies’ implementation in everyday life? How will daily life be affected?

Thus, human-machine-interdependence is contested by the value alignment problem.

There are two sides to the problem here<sup>10</sup>: (a) technical – how to give AI (machines) an understanding of human values, and goals. How will AI process what humans want, how they feel about certain things, what is their worldview, and (b) whose values it should be? Society is divided; bankers and housekeepers have different values. The discriminatory codes and designs of AI technologies have the potential to hide, replace social divisions, and amplify racial hierarchies<sup>11</sup>.

To be biased means to be human, to be a socially organized human being. Biases are due to social class, education, resource availability, culture, religion, gender, sexuality, age. Biases also have purposes and in different situations might be helpful or

---

<sup>10</sup> For a detailed discussion, see (Russell, 2019).

<sup>11</sup> See (Benjamin, 2019).

harmful. The objective is to minimize harmful and unintentional biases in the systems of interaction between humans and AI.

There is also the third side. The famous “Doctor Evil problem”: somebody does not care about humanity but cares only about power in the world. It raises fears s/he will control AI – this might be even worse when someone takes control of the nuclear bombs. The point is that 'Good Guys' might also misuse AI and destroy humanity. The further development of AI technologies, the more pressure on ethical problems. There is no other way to develop AI in a society but to base it on moral norms and values. Specific technological issues like how to code human values are related to the fundamental question: what exactly mean to code human values?

#### **4.3 AI in Everyday Practices: Collateral Damage of Capitalism**

Today, relations between AI and society's everyday life represent a form of economic rationalism that reduces all ‘AI – society’ dimensions into consumer manifestations. There is a shift of AI from primarily a technological and cultural to an economic concern. Values of commodification reduce AI to a trading device with a strict profitable orientation. However, AI technological progress goes hand in hand with artificial sociality progress. AS affects the potential of humane in society.

Competitive individualism and consumerism divide people rather than bring them together around common public interests. AI design based on a particular set of values might bring more harm than good. Practices that justify selfishness as a virtue and sustain the loss of any sense of being societal and public while encouraging feelings of shame and disconnection among the economically dispossessed cannot guide AI's design.

When Adam Smith wrote of the wonders of markets, he assumed a marketplace situated within a moral order composed of people who were sensitive to the importance of being socially oriented. Smith was convinced the moral order would support poor workers' well-being whose hard lives he found so deeply troubling. Unable to imagine how markets destroy virtue, Smith envisioned a future of material abundance shared by all. How does it work in a situation when AI technologies have started to divide society in new ways?

The irony of the market society is that it widens the gaps separating the rich from the poor and everyone else. There are additional ironies with AI technologies in the

market society. They can create needs no one needs to fulfill, and simultaneously it might fail to satisfy the genuine needs everyone has. These are the problems that AI designers, engineers, scientists, and humanists have to address consistently.

The capitalism that we have today is the kind of capitalism that is empty of purpose. It does not have any articulated objective for societal well-being; it is still based on the other three Ps: Private Property, Profit, and Price (market). And Artificial Sociality will increase capitalism's 'emptiness,' or it might increase its social well-being if it is societal mission-driven capitalism<sup>12</sup>.

Of course, due to current discourses developed in media and the public at large, society might expect that capitalism with AI and AS will be oriented toward solving the hard problems for humanity and eliminating the vices of climate change and preserving nature as well as fighting with possible pandemics. However, there is only one mission that current-capitalism might have - it is self-preservation or preservation of capitalism itself, preservation of its three Ps: Private Property, Price, and Profit. At this historical juncture, AI and AS can do nothing but supplement and enhance this mission<sup>13</sup>. The question of what to do with this is both a question of theory and practice.

## 5 A CONCLUDING REMARK

There is no sense in going back to a certain point in the history of science and technology, where society turned "in the wrong direction" for some reason. We should not look for a "Golden age" in history, but something that will allow society to move forward in entirely new conditions.

As opposed to pure technology-driven modernization, the importance of human-centered AI surfaces as a useful tool to question, reflect on, and offer alternatives to normative technology-based everyday practices. The quickest way to express what is at stake here is to say that the point of AI in society is not that humans have new tools, but that they have new tools from *someone*, for particular *purposes*, and in a new set of *relationships*.

---

<sup>12</sup> See (Benjamin, 2019).

<sup>13</sup> See (Zuboff, 2019).

AI designers produce what interests them and make them happy. In their minds, their highest-value product is a new version of their own values. They cannot but define value by what they value. However, designers' values may have nothing to do with the values of manufacturers or consumers (Ford, 2018).

The social sciences and humanities representatives are not yet continually active in studying AI phenomena (Collins, 1992). Again, disciplinarity continues to dominate; and philosophers are not in accordance with anthropologists, cultural sociologists with lawyers, or economists.

We believe Social Analytics as a general approach that calls for a diversity of scientific methods and theoretical frameworks will achieve more productive results in studying AI at this juncture of scientific investigation of AI phenomena and problems.

Therefore, Social Analytics refers to a lens through which to examine social, legal, ethical, economic, political, and engineering problems, intellectual dislocations, exclusions, and challenges for exploring the development and effects of AI phenomena on society.

Humans are not Machines. Humans are not Computers, and Computers are not Humans. The primary deficiency of hitherto-existing views on AI is that scientists look for similarities between what computers are doing and what humans are doing. However, the real need is the opposite: science has to define what are the differences between humans and machines, what makes them unique, and how to enrich humanity via machines and AI.

## **ACKNOWLEDGEMENTS**

This research is sponsored by the Joint Project of National Technology and Science Council (Taiwan), conducted by Dr. Yu-cheng Liu from Soochow University. The title of the joint project is “Artificial Intelligence and human-machine relationships in Health Care Systems of Taiwan and Russia: A Comparative Analysis” and the project number is 110-2923-H-031-001-MY3.

本研究受國科會雙邊協議國際合作擴充加值之補助，計畫名稱為「台俄（RU）雙邊協議型擴充加值（add-on）國際合作研究計畫—台灣與俄國健康照護系統中的人工智能與人機關係：一個比較研究」，計畫編號 MOST110-2923-H-031-001-MY3。該計畫由臺灣東吳大學社會學系劉育成擔任主持人，進行為期三年之交流與合作。

## References

### 1 Books and Articles

- Beer, David (2017). The Social Power of Algorithms. *Information, Communication & Society*, 20, 1: 1-13. <https://doi.org/10.1080/1369118X.2016.1216147>
- Benjamin, Ruha (2019). *Race After Technology: Abolitionist Tools for the New Jim Code*. Polity.
- Boden, Margaret Ann (2016). *AI: Its Nature and Future*. Oxford: Oxford University Press.
- Carley, Kathleen Mary (1996). Artificial Intelligence Within Sociology. *Sociological Methods & Research*, 25, 1: 3-30. <https://doi.org/10.1177/0049124196025001001>
- Collins, Harry (2018). *Artificial Intelligence: Against Humanity's Surrender to Computers*. Madford (MA): Polity Press.
- Collins, Randall (1992). Can Sociology Create an Artificial Intelligence? In R. Collins (Ed.), *Sociological Insight: An Introduction to Non-Obvious Sociology* (2nd ed.) (pp. 155-184). New York (NY): Oxford University Press.
- Couldry, Nick (2015). Researching Social Analytics: Cultural Sociology in the Face of Algorithmic Power. In L. Hanquinet, M. Savage (Eds.), *Routledge International Handbook of the Sociology of Art and Culture* (pp. 383-395). London: Routledge.
- Esposito, Elena (2017a). Algorithmic Memory and the Right to be Forgotten on the Web. *Big Data & Society*, 4, 1: 1-11. <https://doi.org/10.1177/2053951717703996>
- Esposito, Elena (2017b). Artificial Communication? The Production of Contingency by Algorithms. *Zeitschrift für Soziologie*, 46, 4: 249-265. <https://doi.org/10.1515/zfsoz-2017-1014>
- Etzioni, Amitai, and Oren Etzioni (2017). Should Artificial Intelligence Be Regulated? *Issues in Science & Technology*, 33, 4: 32-36.
- Floridi, Luciano (Ed.). (2015). *The Onlife Manifesto. Being Human in a Hyperconnected Era*. Cham: Springer.
- Ford, Martin (2018). *Architects of Intelligence: The Truth about AI from People Building It*. Birmingham: Packt Publishing.
- Frodeman, Robert (Ed.). (2010). *The Oxford Handbook of Interdisciplinarity*. Oxford: Oxford University Press.

- Hoffman, Steve G. (2016). Managing Ambiguities at the Edge of Knowledge: Research Strategy and Artificial Intelligence Labs in an Era of Academic Capitalism. *Science, Technology & Human Values*, 42, 4: 703-740. <https://doi.org/10.1177/0162243916687038>
- Joerges, Bernward (1990). Images of Technology in Sociology: Computer as Butterfly and Bat. *Technology & Culture*, 31, 2: 203-227. <https://doi.org/10.2307/3105658>
- Kapeliushnikov, Rostislav I. (2017). Is Technological Change a Devourer of Jobs? *Voprosy Ekonomiki*, 11, 111-140. <https://doi.org/10.32609/0042-8736-2017-11-111-140> (In Russ)
- Khonineva, Ekaterina A. (2017). Gender and the Display: Communicative Genres and Ways of Categorization in Interaction With Voice Assistants. *Journal of Sociology and Social Anthropology*, 20, 5: 95-112. <https://doi.org/10.31119/jssa.2017.20.5.6> (In Russ)
- Klowait, Nils Oliver (2018). Reflexive Anthropomorphism: Ontological Ignorance, or Ignorant Ontology? *Sotsiologicheskii Zhurnal*, 24, 1: 8-33. <https://doi.org/10.19181/socjour.2018.24.1.5711> (In Russ)
- Korbut, Andrei (2018). ‘Sorry, I Can Not Understand’: Ways of Dealing With Non-Understanding in Human-Robot Interaction. *Laboratorium: Russian Review of Social Research*, 10, 3: 57-78. <https://doi.org/10.25285/2078-1938-2018-10-3-57-78> (In Russ)
- Kuznetsov, Alexander G. (2020). Neural Network Nebulae: ‘Black Boxes’ of Technologies and Object-Lessons from Opacities of Algorithms. *Sociology of Power*, 32, 2: 157-182. <https://doi.org/10.22394/2074-0492-2020-2-157-182> (In Russ)
- Lee, Francis, and Lotta Björklund Larsen (2019). How Should We Theorize Algorithms? Five Ideal Types in Analyzing Algorithmic Normativities. *Big Data & Society*, 6, 2: 1-6. <https://doi.org/10.1177/2053951719867349>
- Maksimova, Alisa S., and Konstantin P. Glazkov (2018). Is There a Digital Microsociology? *Sociology of Power*, 30, 3: 14-37. <https://doi.org/10.22394/2074-0492-2018-3-14-37> (In Russ)
- McCorduck, Pamela (1979). *Machines Who Think*. San Francisco: W. H. Freeman.

- Nim, Evgenia (2018). Self-tracking as a Practice of Quantifying the Body: Conceptual Outlines. *Antropologicheskij forum*, 38, 172-192. <https://doi.org/10.31250/1815-8870-2018-14-38-172-192>. (In Russ)
- O'Neil, Cathy (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Crown Publishers.
- Rezaev, Andrey V. (Ed.). (2020). *Artificial Intelligence on the Way to Artificial Sociality: New Research Agenda for Social Analytics*. Moscow: VCIOM.
- Rezaev, Andrey V., and Natalia D. Tregubova (2018). Are Sociologists Ready for 'Artificial Sociality'? Current Issues and Future Prospects for Studying Artificial Intelligence in the Social Sciences. *Monitoring of Public Opinion: Economic and Social Changes*, 5, 91-108. <https://doi.org/10.14515/monitoring.2018.5.10>
- Rezaev, Andrey V., and Natalia D. Tregubova (2019). Artificial Intelligence, On-line Culture, Artificial Sociality: Definition of the Terms. *Monitoring of Public Opinion: Economic and Social Changes*, 6, 35-47. <https://doi.org/10.14515/monitoring.2019.6.03> (In Russ)
- Ruppert, Evelyn, John Law, and Mike Savage (2013). Reassembling Social Science Methods: The Challenge of Digital Devices. *Theory, Culture & Society*, 30, 4: 22-46. <https://doi.org/10.1177/0263276413484941>
- Russell, Stuart (2019). *Human Compatible: Artificial intelligence and the problem of control*. Penguin, US: Viking Press.
- Russell, Stuart, and Peter Norvig (2016). *Artificial Intelligence: A Modern Approach*. Harlow (UK): Pearson Education Ltd.
- Sivkov, Dmitry Y. (2018). Digital Sociology: Tensions, Ambiguities, Unsolved Problems. *Sociology of Power*, 30, 3: 8-13. <https://doi.org/10.22394/2074-0492-2018-3-8-13> (In Russ)
- Smelser, Neil Joseph (2003). On Comparative Analysis, Interdisciplinarity and Internationalization in Sociology. *International Sociology*, 18, 4: 643-657. <https://doi.org/10.1177/0268580903184001>.
- Turkle, Sherry (2011). *Alone Together: Why We Expect More from Technology and Less from Each Other*. New York: Basic Books.
- Utekhin, Ilya (2012). Interaction With 'Smart Things': Introduction. *Antropologicheskij forum*, 17, 134-156. (In Russ)

- Wang, Pei (2019). "On Defining Artificial Intelligence". *Journal of Artificial General Intelligence, Issue 2*, 1-37.
- Winograd, Terry Allen (1991). *An Interview*. Stanford, CA: Charles Babbage Institute.
- Wolfe, Alan (1993). *The Human Difference: Animals, Computers, and the Necessity of Social Science*. Berkeley: University of California Press.
- Woolgar, Steve (1985). Why not a Sociology of Machines? The Case of Sociology and Artificial Intelligence. *Sociology*, 4, 557-572. <https://doi.org/10.1177/0038038585019004005>
- Zemnukhova, Liliia V. (2018). The Sociotechnical in Digital Sociology: Methodological Possibilities and Limitations. *Sociology of Power*, 30, 3: 54-68. <https://doi.org/10.22394/2074-0492-2018-3-54-68> (In Russ)
- Ziewitz, Malte (2016). Governing Algorithms: Myth, Mess, and Methods. *Science, Technology, & Human Values*, 41, 1: 3-16. <https://doi.org/10.1177/0162243915608948>
- Zuboff, Shoshana (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: Public Affairs.

## 2 Electronic Sources

- Artificial Intelligence Journey. Retrieved August 31, 2021, from AIJ, Website: <https://ai-journey.ru/en>
- European Network of Human-Centered Artificial Intelligence. Retrieved August 31, 2021, from Humane AI Net, Website: <https://www.humane-ai.eu>
- Human-Centered AI Lab (Holzinger Group). Retrieved August 31, 2021, from HCAI, Website: <https://human-centered.ai>
- MIT Sloan Office of Media Relations (2020). 'Human-Centered AI': How can the technology industry fight bias in machines and people? Nov. 19. Retrieved August 31, 2021, from MIT Management, Sloan School, Website: <https://mitsloan.mit.edu/experts/human-centered-ai-how-can-technology-industry-fight-bias-machines-and-people>
- The Institute for Human-Centered AI (HAI) at Stanford University. Retrieved August 31, 2021, from HAI, Website: <https://hai.stanford.edu>

# 從人工智慧到人造社會性：一個新社會分析學概觀

Andrey V. Rezaev<sup>1</sup>

## 摘要

本文探討人工智慧（AI）在不同領域的迅速發展及其文獻。儘管這些資料散佈於計算機科學及工程學的專業文獻中，並且在難度與應用上有很大差異，社會科學在研究 AI 進展方面仍然落後於計算機科學家。近年來，研究社會的學者開始關注 AI 在社會生活中的廣泛滲透。本文透過引入新的觀點與概念來進一步討論，首先解釋 AI 在人類心中呈現為三 P 的組合：現象、問題與階段，接著介紹對 AI 的定義，並闡述這個定義下的五個基本特徵。在簡短的文獻概述之後，本文發展了關於人造社會性（AS）、新社會分析學與探索 AI 的方法論之跨學科性的主要論點。本文的主要提問是「AI 為社會帶來了什麼？」本文回顧 AI 與線上文化之間的關聯，指出短期內 AI、AS 與線上文化不會改變人類本性，但會改變人們的組織方式與社會結構。本文認為，學者的任務是學習如何導向 AI 以及 AS 以增強人類，並且在社會結構中增強人文，並社會化地組織不可避免的人機相互依存。文中也討論 AI 發展期間的價值問題，以及資本主義的「附帶損害」。最後，作者強調人類不是電腦，電腦也不是人類。迄今對 AI 的主要缺陷是科學家尋找電腦與人類行為之間的相似之處，但實際需求恰恰相反：科學必須定義人類與機器的差異、它們各自的獨特性，以及如何透過機器與 AI 豐富人性。

**關鍵詞：**人工智能、人造社會性、社會分析學

---

<sup>1</sup> Distinguished Research Professor/Director International Research Laboratory “TANDEM”, Faculty of Sociology, St Petersburg State University, Russia

通訊作者：Andrey V. Rezaev, E-mail: rezaev@hotmail.com

[https://doi.org/10.6284/NPUSTHSSR.202312\\_17\(4\).1](https://doi.org/10.6284/NPUSTHSSR.202312_17(4).1)