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Гашков В. О.,
Студент 2 курса магистратуры
Факультет Политологии
Санкт-Петербургский государственный университет

Пригарина В. А.,
Студент 2 курса магистратуры
Факультет Политологии
Санкт-Петербургский государственный университет

Этические проблемы применения искусственного интеллекта: гендерный аспект

В статье дается краткая характеристика четвертой промышленной революции, а также интерпретация феноменов «интеллект», «искусственный интеллект». Ставятся вопросы о допустимости вмешательства искусственного интеллекта в жизнь нашего общества, а также о границах подобного вмешательства, поднимается проблема ответственности за последствия решений, принятых искусственным интеллектом. Развитие современных технологий может создавать новые этические проблемы. А получившие сегодня массовое распространение персональные голосовые помощники или ассистенты (Siri от Apple, Cortana от Microsoft, Alexa от

Amazon, Алиса от Яндекса, Маруся от Mail.ru и т.д.), работающие на базе искусственного интеллекта, могут отражать и способствовать укреплению существующих гендерных стереотипов. Цель данной статьи – рассмотрение основных причин феминизации искусственного интеллекта на примере персональных голосовых ассистентов, получивших массовое распространение в реалиях 21 века. Важным также является изучение влияния разработчиков на создаваемый ими искусственный интеллект уже на начальном этапе разработки. Отмечается, что специалистам в области искусственного интеллекта удалось разработать прототип гендерно-нейтральной языковой модели, а также создать гендерно-нейтральный голос для персональных голосовых помощников. В дальнейшем, это поможет избежать гендерной предвзятости искусственного интеллекта, что будет способствовать борьбе с, существующими в нашем обществе, гендерными стереотипами.

Ключевые слова: *искусственный интеллект, современные технологии, голосовые помощники, голосовые ассистенты, гендер, этика, этические проблемы, гендерные стереотипы.*

Gashkov V. O.,
Student 2 term master's
Faculty of Political science
St. Petersburg state university

Prigarina V. A.,
Student 2 term master's
Faculty of Political science
St. Petersburg state university

Ethical problems of the application of artificial intelligence: gender aspect

The article gives a brief description of the fourth industrial revolution, as well as an interpretation of the phenomena of "intelligence", "artificial intelligence". Questions are raised about the admissibility of artificial intelligence intervention in the life of our society, as well as the boundaries of such interference, the problem of responsibility for the consequences of decisions made by artificial intelligence is raised. The development of modern technologies can create new ethical problems. And the personal voice assistants or assistants that have become widespread today (Siri from Apple, Cortana from Microsoft, Alexa from Amazon, Alice from Yandex, Marusya from Mail.ru, etc.), working on the basis of artificial intelligence, can reflect and help strengthen existing gender stereotypes. The purpose of this article is to consider the main reasons for the feminization of artificial intelligence using the example of personal voice assistants that have become widespread in the realities of the 21st century. It is also important to study the influence of developers on the artificial intelligence they created already at the initial stage of development. It is noted that

specialists in the field of artificial intelligence managed to develop a prototype of a gender-neutral language model, as well as create a gender-neutral voice for personal voice assistants. In the future, this will help to avoid the gender bias of artificial intelligence, which will contribute to the fight against gender stereotypes that exist in our society.

Keywords: *artificial intelligence, modern technologies, voice assistants, gender, ethics, ethical issues, gender stereotypes.*

The most developed and civilized states have entered the stage of the fourth industrial revolution, which is characterized by such components as the absolute digitalization of the life of the whole society, the introduction of cyber-physical systems that will serve human needs, the virtualization of social relations, etc. This revolution entails serious qualitative changes in the whole society. Klaus Schwab in his work "The Fourth Industrial Revolution" noted that "the phenomenon that I consider the Fourth Industrial Revolution has no analogues in all previous human experience" [Schwab, 2019].

Before proceeding to consider the phenomenon of "artificial intelligence", it is necessary to explore the existing interpretations of the term "intelligence". The interpretation of this concept has many meanings. The Philosophical Encyclopedia interprets intellect as the ability of thinking, rational cognition [Philosophical encyclopedia, no date]. Psychology defines intelligence as a state of human mental development [National Encyclopedic Service, no date]. In biology, intelligence is understood as a certain ability of objects to display an adequate response to the impact of any external stimuli [Bergson, no date]. Thus, we can conclude that the intellect is a tool inherent in the personality, which is the object of biosocial relations. Intelligence is a reflection of the perception of intelligent human activity. And here a completely logical question arises: is it possible to create an artificial imitation of intelligence, which would fully reflect the entire spectrum of the human psyche?

Artificial intelligence is just an artificial model aimed at imitating living intelligence. This term was introduced by the American computer scientist and founder of functional programming John McCarthy in 1956. In the broadest sense, artificial intelligence is understood as the ability of mechanisms, machines to imitate human behavior [Intellect and Law, 2018].

Artificial intelligence is part and parcel of the fourth industrial revolution. This technology has a significant impact on all spheres of society: science, medicine, culture, politics, industry, etc. The essence of the "artificial intelligence" technology lies in a certain intelligence, autonomy, and the ability to influence people's lives. If we turn to the legal definition of the term "artificial intelligence", then in accordance with Decree of the President of the Russian Federation of October 10, 2019 No. 490 "On the development of artificial intelligence in the Russian Federation", artificial intelligence is understood as "a set of technological solutions that allow simulating human cognitive functions (including self-learning and search for solutions without a predetermined algorithm) ... The complex of technological solutions includes

information and communication infrastructure, software, processes and services for data processing and search for solutions" [4]. President of the Russian Federation Vladimir Vladimirovich Putin believes that artificial intelligence is the future of the whole world, and whoever takes a leadership position in this area will also receive global leadership [RIA Novosti, 2020].

Artificial intelligence is characterized by the fact that it is able to train itself on the basis of already accumulated experience [Vorontsov, Mamychev, 2019]. As a result, getting into similar situations, artificial intelligence will act differently, building all kinds of action scenarios. Thus, a number of problematic questions arise before humanity: who will and should be responsible for the consequences of decisions made by artificial intelligence? Is it necessary to invest a moral algorithm in the behavior of artificial intelligence? Where do the boundaries of the admissibility of artificial intelligence intervention in the life of a person and the whole society as a whole begin and end? [Nazarova, 2020].

The development of modern technologies, in particular, artificial intelligence, can create new ethical problems. Indeed, in the 21st century, the growth of diverse technologies is associated with the fact that various mechanisms, machines begin to show us behavior that is more and more humanlike, as a result of which a number of ethical problems arise. For example, AI-powered voice assistants that can synthesize human speech can not only reflect existing gender stereotypes, but also help reinforce them. Personal voice assistants (or assistants) interact with users in a dialogue format. Considering the personal voice assistants available today, it is impossible not to notice that the feminization of artificial intelligence is taking place. The ever-growing number of voice assistants shows that, even when creating a Posthuman world, humanity continues to use gender structures [Klimovich, 2019]. No existing voice assistant has a human form. However, it is enough to recall that all voice assistants popular today has gender names - Siri from Apple, Cortana from Microsoft, Alexa from Amazon, Alice from Yandex, Marusya from Mail.ru, etc. In addition, they use a female voice in the default settings. One of the reasons for this phenomenon can be called a certain stereotype about women, which prescribes to her the ability to provide emotional support. Even before their birth, all people hear the voice of the mother, which soothes. As Clifford Nass, a professor at Stanford University, points out, "Finding a female voice that everyone likes is much easier than a male voice. Most male voices cause anxiety and discomfort" [Nass, 2010].

In addition, the use of a female voice in such technologies is also historically conditioned. Suffice it to recall the fact that first there were telephone operators, then female dispatchers who warned fighter pilots about the attack [Bainazarov, 2015]. Women were engaged in this work due to the fact that there was not a single woman in the cockpit, and the female voice instantly attracted the attention [Hester, 2016].

Josie Yang notes that "when we add a human name, face, or voice to a technology ... it reflects the preconceptions of the teams that built it" [Chin, Robison, 2020]. There is also Conway's law, named after the programmer Melvin Conway,

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[4] Decree of the President of the Russian Federation of October 10, 2019 No. 490 "On the development of artificial intelligence in the Russian Federation". URL: http://www.kremlin.ru/acts/bank/44731 16/09/2022.

according to which systems, including computer programs, all kinds of applications and algorithms, reflect the values of the people who develop them [Scelton, Pais, 2020]. However, it is worth adding that, after numerous further updates and improvements to voice assistants, in the settings it was still possible to enable a male voice. As a result, we can conclude that voice assistants only evoke the assumption of gender with the help of various information: name, voice and spoken responses.

Artificial intelligence researchers have found that gender voices can shape users attitudes or perceptions of a situation and induce gender stereotypes in their behavior. In the 1990s, Stanford researchers Byron Reeves and Clifford Nass discovered that people behave with computers in the same way as with people, they interact with them as with men and women, and gender-differentiated computer voices only reinforce gender stereotypes. Gender voices alone are enough to evoke gender-typical behavior in people, even if they receive no other gender cues [UNESCO, no date].

Why do people put a gender paradigm into artificial intelligence? The answer to this question is quite simple: people endow artificial intelligence with gender due to the fact that they are simply more comfortable that way. Gender is one of the social categories that humanity faces every day, and by putting it into the work of artificial intelligence, people feel at ease. And here again ethical questions arise regarding the gender representation of artificial intelligence: how to display gender characteristics in artificial intelligence? And is it even necessary to recreate gender diversity when creating modern technologies?

Gender-specific voice assistants contribute to the reproduction of gender stereotypes about women as submissive, compliant individuals, usefulness and altruism are perceived exclusively as qualities inherent in women. Artificial intelligence-based voice assistants do routine work: they create calendar reminders for an event, make appointments, and answer standard user questions. As a result, a stereotype about the standard role of a female assistant appears. Artificial intelligence technologies contribute to the spread and perpetuation of gender bias among people [UNESCO, no date].

Researchers Caitlin Chin and Michela Robison published an article titled "How AI Bots and Voice Assistants Reinforce Gender Stereotypes" in which they describe their research [Chin, Robison, no date]. So, the four most popular voice assistants (Siri, Alexa, Cortana, Google Assistant) were asked about their gender identity. As a result, all four voice assistants refused to recognize their gender identity, or did not answer at all.

The Russian AivsBIAS development team, which includes M. Kuznetsov, A. Pokroy, has developed a prototype of a gender-neutral language model that can be applied to personal voice assistants, various chat bots, etc. in the future. The essence of this model is that there is no need to train artificial intelligence on a gender-neutral data set. One way to avoid gender bias in AI algorithms is to train it with neutral datasets. At the same time, gender-neutral datasets are extremely difficult to find, which causes additional difficulties for developers. And even training artificial intelligence through the use of such sets, in the end, may not bring the desired results - artificial intelligence will still produce gender stereotypes. The AivsBIAS development

team, based on their gender-neutral language model, demonstrated that artificial intelligence is trained using a special regulatory function that allows it to remain gender-neutral even after training on unbiased data sets. As a result, using a gender-neutral language model, it will be possible to avoid the gender bias of artificial intelligence, which means that it will also be possible to avoid gender stereotypes [Kuznetsov, no date].

It is also important to create a gender-neutral voice for personal voice assistants. Success in this direction was achieved in 2019 by specialists from the Virtue agency, which included linguists, sound engineers and technologists. They conducted a test in which 4,600 people participated in order to identify gender-neutral voice frequencies. As a result, a new gender-neutral voice assistant was created, which was called Q. The creators of this project plan to offer the largest IT campaigns to implement this voice for their voice assistants. Kara Curtis notes that a voice like this should end the gender bias of artificial intelligence [Curtis, 2019]. In addition, a genderless voice is another step towards combating existing gender stereotypes.

Artificial intelligence-based voice assistants today are incredibly widespread throughout the world. At the end of 2020, there were 339 million smart speakers with voice assistants alone in the world [TADVISER, 2021]. And this is not to mention personal voice assistants that are part of the operating systems of various mobile and desktop devices or specially installed applications. Therefore, it is extremely important to evaluate how exactly voice assistants based on artificial intelligence broadcast gender stereotypes in order to apply all necessary measures to properly work to combat gender stereotypes.

Thus, we can conclude that artificial intelligence and voice assistants, in particular, are becoming more and more popular in modern society, so it is necessary to evaluate how exactly they translate gender stereotypes, it is necessary to study the influence of developers on the artificial intelligence they created already at the development stage. In order to overcome the existing gender stereotypes in artificial intelligence, it is necessary to create the final product the way it should ideally be, and not just reproduce what already exists in our world.

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Ковалева М.В.,
кандидат исторических наук,
преподаватель кафедры общеобразовательных дисциплин,
Орловский государственный университет им. И.С. Тургенева
(Мценский филиал)

Воспитание и обучение детей в Италии эпохи Возрождения

Статья рассказывает о семейном воспитании и возможностях образования для детей из зажиточных семей в Италии эпохи Возрождения. Итальянские семьи эпохи Возрождения были патриархальными и многопоколенными. Устойчивое положение семьи требовало наличия достаточного количества детей. Зажиточные и знатные семьи помогали получить своим наследникам хорошее образование. Начальное образование дети получали в частных и муниципальных учебных заведениях. Высшее образование давали университеты, в преподавании которых нарастали гуманистические тенденции.

Ключевые слова: *Итальянская семья эпохи Возрождения, рождение детей, обучение детей, городские школы, придворные училища, иезуитские коллегии, университеты.*

Kovaleva M. V.,
Kandidat of Historical Sciences,
Senior Lecturer of the Department of General education disciplines,
Orel state University named after I. S. Turgenev,
Mtsensk branch

Family upbringing and public education of children in Renaissance Italy