ENGAGING THE ARTIFICIAL INTELLIGENCE IN SUPPORT OF THE POLICE ACTIVITY

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Abstract: The Artificial Intelligence (AI) is a term that is increasingly common in our daily lives, which enters at an extraordinary pace in all areas of life and refers to a wide variety of autonomous actions of machines that perform digital data processing in a trend to conduct analyses and produce conclusions based on them. Like other segments of society, police officers have to face and accept this fact, as well as the resulting challenges on the move, parallel to their current activities and perhaps, regarding most of them - without any special training. All this is happening at a background of some ambiguity, a lack of common agreement and an ongoing debate among experts in the field of the humanities worldwide on topics such as what human thinking, imagination and intelligence actually are, what is the diversity between the natural and the artificial analytic and synthetic capacities, and whether we - humans share a common general system of values that could be uploaded on a computer system to present an essential characteristic of our civilization, or not. Based on a survey of 100 active operational police officers and sergeants, who have different positions, different qualification, diverse age, sex and professional experience, all of them having demonstrated fragmental and incomplete knowledge on the topic (and in some cases - lack of any clarity on the issue), this article presents the beginning of a new research, aiming to bring awareness, respectively - understanding of current trends in the field of the AI engagement and exploitation to serve expertise in prevention, detection, disclosure and analysis of various types of crime, as well as its application in social processes' monitoring in a set with generating criminological forecasts for what the Police is about to deal with in nearest or further future. The text comments on the concepts that AI designers embody in the new technology, discussing the aspects of overlap and confrontation with the notions, shared by researchers in the field of the humanities. At the same time, a perspective on the future dynamics of this process from a philosophical and ethical point of view is suggested too, bearing in mind that as it has happened with any technological development leap in the past, the criminals will be very active in this area and perhaps, they will act ahead of the law enforcement agents. The text does not claim to be comprehensive, because the topic refers to a very large-scale field that allows for different discourses. Apparently, this research falls in its initial stage and due to this reason, I am not in a hurry to formulate final conclusions. This publication expected effect is to accumulate criticism to be taken into consideration in developing the future dissertation, as well as to hear standpoints coming abroad from the law enforcement system.
Keywords: intelligence, digital technologies, police, awareness, crime disclosure.

1. INTRODUCTION

Regarding a considerable share of the update Bulgarian society, the term Artificial Intelligence (AI) produces a set of individual notions, ideas and attitudes in a wide range that involves curiosity, fantasy, expectations for a better or scarier future, and ultimately a degree of indifference and subconscious denial of the oncoming reality. This process is also typical for a significant segment of the Bulgarian Ministry of Internal Affairs staff, common to most representatives of the contemporary local society. In case of excluding the relatively small number of experts in the field of computer science and cyber security, generally, the Policemen do not understand the essence of the social changes resulting from the big technological step forward which currently all of us experience together. There is no awareness of the emerging issues on a global social scale, although gradually, a growing number of the population is getting in a habit to use various forms of the machine intelligence daily. A substantial reason for this state is rooted in the fact that both - in Bulgaria and around the world, is due to the fact that yet, there is a severe lack of agreement among experts (scientists, AI designers, software engineers, psychologists and philosophers) on this field terms' definition.

2. OBJECTIVES

This publication aims to present a new research, based on a study of the knowledge degree among officers and sergeants serving to the Bulgarian police (excluding the administrative staff) and to compare it in reference to the nature of AI, as focused within the concepts which its designers embody to the new digital technologies development. The research will prove and highlight partial or a total misunderstanding of the AI essence and issues, which lays a strong impact in relation to the AI application to the policemen professional and private experience. This problem management requires conducting a specialized training that will interpret the complicated scientific and philosophical challenges, applying popular language and an accessible for this particular audience style. The

mission is to provide the police officers with the necessary knowhow and to encourage them to focus on the new opportunities, which in many cases might facilitate their work, make it easier and at the end of the day, increase their efficiency.

The research methodology includes an analysis of up-to-date publications, dedicated to this issue and outlining its actuality and enforces providing a diagnostic survey among 100 of my fellow police officers engaged in the field of the security sectors and criminal detection, whose main goals are to maintain the public order, prevent, investigate and disclose crimes.

A next step is to compare the meaning of the concepts, set by the world leading designers in the AI development to the notions, belonging to ordinary police officers. The highlighted discrepancy will shape the framework for an immediate start of training on the AI application topics.

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3. SURVEY RESULTS

The diagnostic inquiry was conducted between 20.007.2020 and 13.08.2020. The participants were randomly selected - 100 women and men aged 22 to 57, holding police positions in different areas of the Ministry of Interior in Sofia and the country, each one having a different professional experience. The diagnostic interview was anonymous and includes ten questions, of which two are "open" and require the formulation of individual answers, while the remaining eight offer three to five ready-made options and the officer has the freedom to indicate more than one of them as correct. As evident from the 100 inquiry cards, just about 20% of the respondents applied this opportunity. The rest considered a single answer as being sufficient to co-relate to each of the eight questions, offering a choice between the diversity of suggestions. A considerable share of the interviewed – 42% did not give any answers to one or both "open" questions, and in fact, their cards are incomplete.

The answers to the first question of "What is intelligence?" outline that 71% of the respondents associate this term primarily with a broad personal culture; less often – 26% relate it to either a human whose mind is very reactive to any foreign challenges, or to developed personal analytical thinking, vigorous reasoning and performing a scope to original conclusions. All these options were proposed as ready-made answers for choice, in a set with a last one, which (as will become clear later in the text) is closest to the concepts providing the basis for a comparison between human abilities and those of AI. Namely – intelligence is a set of capacities to correctly predict what is about to happen. According to thete poll, only 3% of the respondents pointed to this answer as correct. Regarding the second question "In short, what do you think Artificial Intelligence is?" - a question, designed to be responded by a personally defined statement, there is no reply to put it i reference with the capacities, demonstrated by the contemporary top quality digital machines. It is evident that difficulties on the subject arise immediately in replying questions #3 and #4 that ask to give an example of AI and to tell whether the policemen use AI performing devices in their everyday life. 59% claim "No.", which contradicts their answer to the previous question. At the same time, it is clear that they do not refer the question to the fact that all of them operate smartphones and use either navigation, or speech recognition in dictating professional or personal messages to their devices. The rest of the questions:

- What is computer text recognition?
- What means key words analysis?
- What is the meaning of data statistical processing?
- What is AI conducted face recognition?
- What is the meaning of a "bitcoin"?
- Apparently, is AI involved to the Ministry of Internal Affairs practice?

aimed not only to detect the level of awareness or non-awareness on these issues, but also to hint all respondents a perspective to think about in advance to answering. However, a positive result was not achieved.

However, before any conclusion is produced, it is necessary to make a comment on the contemporary AI theory and on what the AI operating devices demonstrate currently.

4. DISCUSSION

Let me first focus on the AI theory essential terms, although most of them keep undergoing a hot multidisciplinary and transdisciplinary debates. An overview on the new technology analysis history says that the first one to comment on AI worldwide is the exceptional British mathematician Alan Turing (1950). Like any other idea raised by a genius, his concept sounds simple and clear: he claims that in case a human is in communication via keyboard typing and reading replies on a display, and he is successful in providing a conversation for longer than 15 minutes without detecting that his partner in the dialogue is a machine, then we would be facing the phenomenon of AI. These 15 minutes have become the core of the AI theory even today. They are known as the Turing Test, which throughout the decades since 1950 until nowadays has been put under severe criticism but has also accumulated strong defense and support. However, it must be noted that according to several publications on behalf of the BBC (June 2014), an international creative team has performed their product in London before large audience of experts and other spectators. Their AI named *Eugene Goostman*, designed to simulate a 13-year-old boy passed the Turing Test very successfully.

I must highlight a specific particularity. In English – the world language used by all specialists in the field of the computers and computations, the term is Artificial Intelligence, while in my native Bulgarian we comment on "Изкуствен интелект" (AI Operator/Applicator). In other words, people discuss not the capacity but the body that exploits it. Perhaps, the emphasis has been laid on the actor (as a noun) instead of on his/her abilities once interpreting from English to Bulgarian science-fiction novels like the very popular one "I, Robot" by Isaac Asimov (1950). Although having been a writer, rather than a researcher, he was the first theoretician to present a line of ethical issues emerging due to the "clever machines" introduction to our life and suggested the famous three laws of robotics.

According to me, apparently, the most convincing definition of AI belongs to David Hanson (2016) – a co-owner and co-operator of Hanson's Robotics being well known for having produced the human-like robots Einstein and Sofia who are successful in speech and image recognition, thus being able to provide conversations with humans and reply to various questions. Hanson holds that intelligence is a capacity (a set of abilities) and intelligent is anyone who performs them, no matter of whether his origin is Biological, or purely Physical one. He claims that intelligence means being open to the environment, to perceive it and based on this activity – to produce autonomously predictions on what is about to happen in order to get prepared and react adequately to the oncoming events. Hanson argues that this is the path followed by all biological forms in a trend to survive both, individually and as a species. Further, he adds that understanding means that the autonomously generated forecasts happen indeed. Therefore, the greater number of the produced correct predictions and the higher level of their complexity prove the higher level of intelligence demonstrated by their creator, nonetheless of whether he is a human, an animal, or a purely physical machine. This concept was further developed by Alexander Wissner-Gross (2016) who points out that generating predictions, the intelligent bodies deal with probability. In any event, the most intelligent ones consider a hypothesis that their expectations may come out as wrong. Therefore, along with the most probable scenarios, all highest intelligence operators recognize alternative possibilities keeping a freedom to choose from options to act in correspondence to what is really happening. In fact, the above-mentioned views are basic for the currently applied conceptual framework of the AI development.

In 2020 Alexander Lazarov pointed that the term intelligence is unavailable in most philosophical dictionaries Philosophical analyzes by Aristotle and Plato to date have focused primarily on human thinking (including perception, reasoning, consideration, imagination, etc. - in reference to the Continental Philosophical Tradition), or on human language and knowledge (as unique features belonging to the human mental activity - in the trend of Analytic Philosophy).

Gradually, the American Pragmatic School emerged at the philosophical horizon. It was unique in allowing the application of several "proper" viewpoints to a single issue, that vary depending on the goal wanted to achieve by the analysis. The end of the 20th Century also marked the foundation of the Philosophy of Information trend – the first one to introduce it was Luciano Floridi (1999). It is interesting to observe his and other thinkers' views in this field, which along the years have been changing and developing parallel (and due) to the digital systems very impressive progress. It is evident that because of the unexpectedly fast acceleration of the computers' capacities, the philosophical conclusions needed a substantial review and reassessment.

However, there is a considerable number of researchers who disagree with it. They insist on other definitions of intelligence and according to some of them, AI does not at all exist. In my perspective, the "clever machines" availability, development progress and application are evident, and this is a non-arguable fact.

Importantly, as explained by Lazarov, it is necessary to bear in mind some Philosophy of Information assumptions to make a comprehensive analysis on AI. For example, at a first place this refers to making the difference between

data and information – both are crucial for a detailed investigation of the intelligent procedure, which in any event involves the following steps no matter of whether it is conducted by a human or by a complex computer system:

- First, it is to identify the data from the physical and social environment, its collection, transduction to a brain or to a processor, further - encoding, structuring and memorizing it in a particular architecture, with an option of a future recall, re-reading, reconfiguration etc.
- Next comes the goal orientation which regarding the digital apparatus seems common to the human raising of ideas or the emergence of our intentions.
- The third phase refers to generating autonomously an individual Informational Product (IP) – this is a set of the intentional goals with a detailed step-by-step plan on how to achieve them. The creative process requires a recall from memory of relevant digital codes for their reconstruction and generally, a necessity of additional data search from foreign to the system sources occurs.
- Once having created the individual IP, both humans and AI operating bodies have the freedom to decide whether to keep the new in-form in privacy by just memorizing it, or to make it visible for other intelligent actors. The last is possible either by per-form, or by trans-form. A performance means presenting the individually created in-form virtually as readymade data constructs addressing foreign to the intelligent body perception. For example, sharing it by using language, gesture, mimic, illustration, creating pieces of art, sketching various projects etc. On the opposite, the trans-form means a direct in-form embodiment within the physical or social environment. The particularities between both refer to two perspectives: the virtual sharing of information does not cause direct changes within the environment but at least one foreign intelligent actor is necessary to perceive the message immediately, or at a later moment. At the same time, the transformations bring immediate environmental changes, no matter of whether they are observed by another intelligent body or not.

This analysis recognizing the common intelligent procedure, applied by humans and AI contains the key for understanding the Black Box phenomenon which we witness while observing the activity of the computers dealing with Big Data. The issue is that Big Data is such a vast volume of data that even the most talented and clever human cannot perceive, memorize, and work with it. Therefore, nobody of us can process it neither by thinking on it, nor by engaging his imagination. Moreover, to be classified as Big Data, it must involve non-structured flows that have heterogeneous origin and undergo constant numerous changes. AI purely statistical approach is successful in Pattern Recognition within such an environment by finding out various data structures' co-relations, It memorizes them for future application, and this is the core of the Big Data – Deep Learning processing.

As highlighted above, humans are unable to conduct such an activity due to the enormous volume of data to take into consideration, so our "partnership" with the AI is expressed only in our periodic being granted with its investigative findings in relation to the initial order on our behalf. However, as far as AI analyses the Big Data sets applying Neural Network digital processing in a perspective of their Deep Learning, it is impossible for us to provide a real-time monitoring on its actions and in any event, they will remain in a framework of secrecy for us. This fact is substantial because we will never know if the AI is presenting to us the totality of its IP, or just a part of it. Therefore, it is logical to conclude that the AI creativity is richer and more productive if compared to what we know about it.

To draw the AI issues overview picture, even in a general framework, it is necessary to consider its progress dynamics which is obvious from the following views. In the beginning of the 21st Century the AI experts' expectations were related to its development in three stages:

- First was predicted to emerge the Weak AI operating a weaker than the human intelligent capacity.
- Next was the "Normal" AI – applying approximately equivalent to the human mental abilities.
- Finally, to appear in a far future, the Strong General AI was supposed to appear as our much powerful intelligent competitor.

However, the AI creators' practice has presented a diverse result. The very fast technological progress brought a successful realization of Narrow AI that is specialized in different areas – navigation, speech and image recognition, medical diagnostics, driverless vehicles, pilotless drones, marketing predictions production, language to language interpretation and others. It became clear that even this Narrow AI) exceeds the human intelligent capacity and apparently, the debate is not whether, but when the computer that can drive successfully a car will be also able to play Chess, conduct medical diagnostics etc. Then we will have to meet the General AI. I do not dare to engage myself to a specific period for this advancement, however, I am convinced that the AI operating very extended capacity will appear soon.

Another important detail to bear in mind, as outlined by Lazarov, is that according to the Philosophy of Information, there is a considerable diversity between AI and Robotics. AI is the IP creator, while the robot operates the specific

computer periphery which is necessary for the IP performance or transformational embodiment. In this trend, robots are not obliged to look and act human-like. Their design entirely depends on their functioning, so they can vary in shape from small "mechatronic insects" to mechanical giants. However, it is logical to conclude that soon we will experience meeting strangely designed machines that can move and start a senseful conversation with us in many languages. At the same time, in case of AI created just to compose music or to play Chess, a loudspeaker or a display may be enough to present its IP, while the AI is positioned in a simple desktop box.

A clear indication about the emerging changes within the AI development conceptual framework can be observed as follows: more than 1100 Colleges and Universities around the world teach AI, based on one of the most popular textbooks "Artificial Intelligence – A Modern Approach" by Russell Stewart and Peter Norvig (2020). Its first edition is from 1995, and the last one is from this year. A comparison between the two editions outlines the essential change, both in the understanding of what AI does indeed, as well as regarding the expectations about its future.

I guess, currently, there is no need to convince whoever that the face and speech digital processing and recognition strongly contribute to the identification of criminals. However, engaging the AI for police purposes is possible in a much larger framework. The option of real-time big financial flows' monitoring is very helpful for detecting where, to whom and for what aims big amounts of money are transferred. Apparently, the online observation on the Social |Networks is conducted by commercial companies for their marketing researches, but it can also serve anti-terroristic goals, predicting of criminal trends and actions, as well as for producing expectations on individual human behavior. The computer systems can do all that autonomously and if ordered – to alarm the policemen in cases of danger on the horizon. There are other options too.

Generally, the publicity on the AI capacity in support to the crime and disorders detection do not run in detail to prevent the criminal actors' awareness on the police investigative capacity. However, there are some announcements that illustrate the wide range of the new AI based technologies application. For example, Ivan Parvanov (2020) reports that the Traffic Police of New Zealand has got a unique new member – the robot *Ela*. He presents "her" as a virtual assistant operating real-time basic abilities and having human-like realistic features to simulate understanding and sympathy in communication with humans. According to the results of all observations on this robot, the Police of Wellington intends to further develop its capacity and social role. Dimiter Petrov (2020) informs also that currently AI is engaged in partnership with the Police in South Korea by applying its deep learning capacity on the CCTV monitoring and highlighting any irregularity to emerge. Thus, the humans become liberated from a constant watch on the screening, so that a smaller number of policemen can cover a much wider area.

Perhaps the brightest and most eloquent view belongs to prof. Nikolay Radulov (2020), who stated in an interview that: *"The solution is finally the whole security sector to take a serious look at the preparation of its employees, to try to at least keep up with the current situation, if not with modern times. Because you know, special services around the world are now preparing analysts for the new technology's giant data sets. That is, analysts for "big data while we still write template reports"*. He further stressed that apparently, the Ministry of Internal Affairs with regard to AI, should not perform a shortage of natural intelligence.

5. CONCLUSION

No doubt, the development of AI and its capabilities to deal with Big Data presuppose its involvement in support to the police authorities, at least because it is likely that the segment of the criminal actors will be first to benefit from the new technology. AI can be applied to produce predictions on crime issues, to detect and monitor preparations to conduct crimes, to identify people in criminal investigations, as well as for purposes related to crime prevention. At the same time, the results of AI analyses will also be useful for criminology - for detecting and observing some trends in crime, as well as for predicting the behavior of its representatives. I am sure that at a high level the Interior Ministry is already working in both perspectives. The contemporary main issue is to make this knowhow available not only to the senior analysts, but to fit it to the ordinary policemen practice, who should learn what the new possibilities suggest in a trend to make their work easier and thus, to gain efficiency referred to their daily tasks performance. Once the AI is widely engaged in support to the police activity, the results will improve significantly, and the awareness on this option is the prerequisite to happen. This study intends making a step in the right direction.

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