COGNITIVE AUTOMATION AND AUGMENTATION USING BIG DATA

Priyanka Anumandla

University of Maryland, Baltimore County

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Dr. Najam Hassan

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Abstract

This research intends to look into the ramifications for organizations and society of cognitive automation and augmentation with Big Data. The use of cutting-edge technologies to automate or enhance cognitive functions traditionally carried out by humans is known as cognitive automation and augmentation technology. With an emphasis on how it can increase the precision and effectiveness of analytics, the research will look at the advantages and difficulties of this technology. The research will also examine how modern technologies such as artificial intelligence, machine learning, and others can use big data to improve analytics and decision-making. The ethical ramifications of cognitive automation and augmentation with Big Data will also be highlighted in this research, along with the precautions that must be taken to ensure the responsible use of this technology. The study will go over the effects of leveraging big data for AI and machine learning, with a particular emphasis on how these tools might improve analytics and decision-making. It will also look at the ethical implications of cognitive automation and augmentation with Big Data, including concerns with transparency, prejudice, and privacy. The study will also emphasize the significance of ethical usage of this technology and the requirement to solve these issues. In conclusion, this research will provide a thorough analysis of the possibility of cognitive automation and augmentation with Big Data. It will examine the advantages and drawbacks of this technology, its effects on organizations and society, and how Big Data plays a part in artificial intelligence and machine learning.

Contents

1.0 Introduction

In recent years, the topic of Cognitive Automation and Augmentation using big data has become crucial. Big data can present new potential to enhance decision-making processes through the use of cognitive automation and augmentation because it contains huge amounts of structured and unstructured data. This study attempts to investigate the benefits, drawbacks, and implications for businesses and society of cognitive automation and augmentation with Big Data.

The study also looks at the ethical issues that arise with cognitive automation and augmentation, as well as what has to be done to ensure that this technology is used responsibly. The merits and drawbacks of this technology are discussed after a definition of cognitive automation, augmentation, and their relationship to big data is given in the opening section of the study. The research then focuses on the ramifications for businesses and society as well as how cognitive automation and augmentation might enhance analytics and decision-making processes. The study also offers suggestions for guaranteeing the ethical use of this technology and examines the ramifications of cognitive automation and augmentation with Big Data.

2.0 Literature review

Cognitive automation and augmentation, coupled with big data, have become increasingly important in today's technology-driven world. Many studies have explored the implications of these technologies on various industries and organizations.

The authors of this article argue that cognitive technologies have the potential to revolutionize how work is done and create new opportunities for innovation (Kiron, Prentice, and Henderson, 2016). Cognitive automation, in particular, can automate repetitive tasks and free up time for more complex work. On the other hand, cognitive augmentation can help workers perform tasks more efficiently by providing them with additional information and decision-making support.

However, the adoption of cognitive technologies also poses significant challenges for businesses. For example, implementing these technologies can require significant investments in infrastructure and training. There is also a risk that the use of cognitive technologies could lead to job displacement or a mismatch between worker skills and job requirements.

Another study by Guo and Li (2019) explored the implications of cognitive automation and augmentation in the context of financial risk management. They found that these technologies can improve the accuracy and speed of risk analysis, but also raise ethical concerns related to the use of sensitive data.

Overall, the literature suggests that cognitive automation and augmentation, combined with big data, have the potential to transform various industries and create new opportunities for innovation. However, businesses must carefully consider the challenges and ethical implications of adopting these technologies.

3.0 Technical details

Cognitive automation is the process of automating cognitive processes that were previously carried out by people using artificial intelligence (AI) and machine learning (ML). Activities that require thinking, reasoning, decision-making, and problem-solving are referred to as cognitive tasks. Natural language processing (NLP), computer vision, and deep learning are a few examples of cutting-edge algorithms used in cognitive automation that can analyze and interpret data. With less human involvement in repetitive and difficult operations, cognitive automation can increase accuracy, productivity, and cost-effectiveness.

On the other hand, cognitive augmentation describes the application of technology to improve human cognitive capacities like memory, attention, perception, and decision-making. Cognitive augmentation helps people carry out cognitive tasks more effectively and efficiently without replacing human talents. In order to enhance human cognitive capacities, cognitive augmentation makes use of technology like wearables, brain-computer interfaces, and augmented reality.

Large and complicated datasets that are challenging to handle and analyze using conventional data processing techniques are referred to as "big data." Social media, sensors, and online transactions are just a few of the sources of big data, which also encompasses organized and unstructured data. To extract insights and patterns from Big Data, advanced analytics methods like Machine Learning and Artificial Intelligence are needed. Big Data can offer insightful information on consumer behavior, industry trends, and corporate operations, enabling better decision-making and giving businesses a competitive edge.

4.0 Benefits and Obstacles of Cognitive Automation and Augmentation with Big Data

4.1 Benefits

Improved accuracy and efficiency, cost savings, a competitive edge, and improved decision-making processes are just a few advantages of cognitive automation and augmentation with big data. Cognitive automation can shorten the amount of time and effort needed to complete complicated and repetitive tasks, leading to quicker and more accurate results. For example, chatbots powered by AI can offer customer care around-the-clock, lowering the need for human intervention and boosting customer satisfaction. By lowering errors and inconsistencies brought on by human prejudice and weariness, cognitive automation can also raise the caliber of output.

Human cognitive abilities can be strengthened by cognitive augmentation, which will boost productivity and decision-making. For instance, using augmented reality can eliminate the need for manual training and reference materials by giving employees access to information and direction in real-time. Smartwatches are one example of a wearable that may track and monitor an employee's health and wellbeing, increasing their productivity and decreasing absenteeism.

Cognitive augmentation can boost competitive advantage by utilizing cognitive automation and augmentation with Big Data, firms can achieve a competitive advantage. Organizations can use this technology to find new possibilities, forecast client behavior, and enhance many aspects of their business.

Cognitive automation can improve healthcare, by using natural language processing and machine learning to improve disease diagnosis, predict patient outcomes, and identify new treatments. (Arif, M., Ali, T., & Ahmed, S., 2019)

Cognitive automation and big data analytics in supply chain management, explore how these technologies can be used to optimize supply chain operations and improve overall efficiency (Gao, Y., & Wang, J., 2018).

4.2 Challenges

Big Data-based cognitive automation and augmentation, however, also present a number of difficulties, including the possibility of job loss, ethical issues, poor data quality, integration, and skill gaps. In repetitive and monotonous jobs, cognitive automation might take the position of human workers, creating job displacement and unemployment. Furthermore, cognitive automation and enhancement may lead to ethical issues including bias and privacy infringement. AI algorithms have the potential to reinforce preexisting biases in the data, leading to unfair outcomes.

As a result of the enormous volume of data produced by Big Data sources, ensuring data quality can be difficult. Accuracy and dependability are essential for efficient data analysis (Kumar & S, 2017). The quality of the data used has a significant impact on the accuracy and efficacy of cognitive automation and augmentation. To ensure that the data they are using is accurate and trustworthy, enterprises must engage in data management and quality assurance. It can be difficult and time-consuming to integrate cognitive automation and augmentation with current systems. The smooth integration of new technologies with the systems and procedures already in place is something that organizations must ensure.

Adoption of cognitive automation and augmentation necessitates the possession of particular knowledge and abilities. To ensure that their staff can use these technologies effectively, organizations need to invest in their training and skill development. A highly specialized skill set that combines expertise in computer science, statistics, and data analysis is necessary for this. Organizations may find it difficult to attract and retain competent experts as the demand for certain abilities rises. Moreover, cognitive enhancement can violate people's privacy by observing and tracking their actions.

5.0 Improving Analytics and Decision-making Processes

Big Data analytics and decision-making processes can be greatly enhanced by cognitive automation and augmentation. Cognitive automation may uncover patterns and trends that might not be obvious to people by analyzing huge and complicated datasets, resulting in better informed and precise judgments. Additionally, cognitive automation can carry out difficult data analysis activities like predictive modeling and data clustering, giving firms the ability to precisely predict future trends and behaviors (Snijders et al, 2016).

Data can be analyzed to find patterns and trends that can point to a quality problem. Cognitive automation and augmentation might help. Organizations can take remedial action to enhance product quality, decrease waste, and boost customer happiness by identifying quality concerns early.

Organizations can learn more about the behavior, preferences, and wants of their customers by employing cognitive automation and augmentation to evaluate customer data.

This data can be utilized to tailor marketing efforts, personalize the consumer experience, and raise overall satisfaction levels.

Before they develop into serious problems, cognitive automation and augmentation can spot possible hazards and mitigate them (Chen et al, 2015). Organizations may immediately identify patterns and trends that might point to a possible risk by evaluating data in real-time, enabling them to take proactive measures to mitigate the risk.

Processes can be streamlined via cognitive automation and augmentation, which saves time and money on data analysis and decision-making. Organizations can save a lot of money by allocating resources more effectively and requiring less manual involvement as a result.

Organizations can find new opportunities for innovation and quickly launch new goods and services by employing cognitive automation and augmentation to evaluate data. This can assist businesses in remaining competitive and adapting to the shifting demands and tastes of their customers.

By offering current knowledge and insights, cognitive augmentation can improve human decision-making processes. For instance, cognitive augmentation technologies can offer staff members data-driven advice and insights, empowering them to take quicker, more informed decisions. Moreover, cognitive augmentation can enhance team member collaboration and communication, resulting in more efficient decision-making procedures.

6.0 Course of Action: Implications of Cognitive Automation and Augmentation with Big Data for Advanced Technologies in Business and Society

Businesses must develop new capabilities to manage and analyze vast amounts of data, and use cognitive automation to improve decision-making (Davenport, T. H., 2013). AI and machine learning are being transformed by the usage of big data. These systems can analyze enormous amounts of data, spot trends, and make predictions with improved efficiency and accuracy by utilizing Big Data. By enhancing these technologies' decision-making abilities and lowering the demand for human intervention, cognitive automation and augmentation can increase the power of these technologies (Liang et al, 2018).

For instance, cognitive automation and augmentation can be utilized in the healthcare sector to analyze patient data and enhance diagnosis and treatment strategies. It can be used in manufacturing to cut waste and improve production operations. It can be used in finance to stop fraud and better manage risk.

Big Data's use in cognitive automation and augmentation has important effects on enterprises. Companies can raise the productivity and profitability of their operations by using cognitive automation and augmentation to make their processes more accurate and efficient. Big Data can also help businesses understand customer behavior, market trends, and operational processes, which can improve decision-making and provide them with a competitive edge.

Big Data utilization for cognitive automation and augmentation has effects on society as well. Cognitive automation can enhance people's quality of life by lowering the time and effort needed to do repetitive and routine tasks. Moreover, cognitive enhancement can improve human capacities, resulting in higher production and economic expansion. However, it's

important to keep in mind that cognitive automation and augmentation could lead to job displacement and raise ethical issues.

7.0 Suggested course of action: Ethical Implications of Cognitive Automation and Augmentation with Big Data

There are seven requirements for ethical AI, which include transparency, accountability, and human oversight. It is necessary to ensure that big data and cognitive automation are used ethically and responsibly (Bryson, J. J., 2018). Concerns about bias, privacy, and accountability are brought up by cognitive automation and big data augmentation. AI algorithms have the potential to reinforce preexisting biases in the data, leading to unfair outcomes. For instance, AI-driven hiring tools may support racial or gender biases, leading to unjust hiring procedures. Also, by observing and tracking people's behavior and activities, cognitive augmentation tools might violate their privacy.

Transparency and accountability are necessary to ensure fairness and prevent harm (Diakopoulos, N. 2014). Organizations must apply moral and open policies to assure the right use of cognitive automation and augmentation with Big Data (Kim et al, 2018). Businesses must make sure their decision-making procedures are transparent and comprehensible, and AI algorithms are free of prejudice. Additionally, businesses must make sure that the use of cognitive automation and augmentation tools does not violate peoples' right to privacy. However, organizations must be responsible for the decisions made by their AI systems and accept blame for any unfavorable results.

Ultimately, it is important to carefully analyze the ethical ramifications of cognitive automation and augmentation using Big Data. Although these technologies have the potential to have a positive social and economic impact, they also pose substantial concerns over responsibility, transparency, and privacy. To ensure that these technologies are being used in a way that benefits society as a whole, organizations must create ethical and responsible frameworks for their usage.

8.0 Conclusion

Organizational operations could change as a result of cognitive automation and augmentation with big data, which would increase productivity, accuracy, and decision-making. Technology does, however, also provide problems, such as employment displacement and ethical issues with bias, privacy, and responsibility. Organizations must create moral and open procedures and take responsibility for the choices that their AI systems make in order to assure the ethical use of cognitive automation and Big Data augmentation.

In conclusion, the critical topic of cognitive automation and augmentation using big data warrants additional study and focus. We can make sure that the advantages of this technology are realized while reducing any potential drawbacks by addressing the difficulties and ethical issues related to it.

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Based on the authors discussion Big Data analytics and decision-making processes can be greatly enhanced by cognitive automation and augmentation. Cognitive automation may uncover patterns and trends that might not be obvious to people by analyzing huge and complicated datasets, resulting in better informed and precise judgments. Additionally, cognitive automation can carry out difficult data analysis activities like predictive modeling and data clustering, giving firms the ability to precisely predict future trends and behaviors.

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