

AI Mini Research Project on Loss of Natural Intelligence in Humans due to AI

AKARSH JAIN (20212005)
SWAPNIL NAWANI (20212059)

Abstract:- Experts are still debating the potential negative effects of AI on natural human intelligence. Some argue that relying on AI for certain tasks may lead to a decrease in critical thinking and decision-making abilities in humans, as well as job and skill loss. There are also concerns about the potential biases and errors that AI systems may introduce, which could perpetuate existing inequalities and erode human intelligence. Others, however, believe that AI has the potential to improve human intelligence and augment human capabilities in a variety of fields, including healthcare and education. It is critical to carefully consider the potential risks and benefits of AI, as well as to devise strategies for mitigating any negative effects on natural human beings. Ongoing research, regulation, and ethical considerations are necessary to ensure that AI is developed and used in ways that promote human well-being and intelligence.

I. INTRODUCTION

In recent years, artificial intelligence (AI) has advanced rapidly and is increasingly being integrated into various aspects of modern life. While artificial intelligence has the potential to provide numerous benefits, such as increased efficiency and accuracy in tasks, there are concerns about the potential negative effects on natural human intelligence. Decision-making, problem-solving, and language processing are all tasks that AI systems are designed to perform. As a result, there are concerns that humans will become overly reliant on AI, losing important cognitive skills such as critical thinking and decision-making, as well as important social and emotional skills. This could have serious societal consequences, such as job displacement and a widening of the skills gap. In this context, it is important to carefully consider the potential risks and benefits of AI and to develop strategies for mitigating any negative impacts on natural human intelligence.

- One of the main concerns about AI is that it has the potential to perpetuate existing biases and inequalities. This has the potential to erode natural human intelligence while also reinforcing negative stereotypes and discrimination.
- Another source of concern is the possibility of AI replacing human workers in certain industries, resulting in job displacement and economic inequality. There is also the possibility that AI systems will be hacked or manipulated, resulting in unintended consequences and negative effects on natural human intelligence.

- Some AI systems' lack of transparency and explainability raises concerns about accountability and human oversight, which may contribute to a loss of trust in human intelligence and decision-making.
- The use of AI in education raises concerns about its impact on natural human intelligence, including the possibility of limiting creativity and critical thinking abilities. Because of the rapid pace of technological advancement in AI, there may be unanticipated consequences on natural human intelligence that we are not yet aware of.
- It is critical to consider the potential ethical implications of AI and its impact on natural human intelligence, including the possibility of privacy and human rights violations.
- The incorporation of AI into healthcare raises concerns about its impact on natural human intelligence, particularly the possibility of it replacing human empathy and emotional intelligence in patient care.

II. HISTORY OF AI

The history of human-AI interaction can be traced back to the early days of computing in the mid-20th century. Chess was one of the first applications of AI, with early computer programmes designed to compete against human opponents.

In 1997, IBM's Deep Blue computer famously defeated world chess champion Garry Kasparov, marking a watershed moment in AI development. AI has advanced in areas such as natural language processing, image recognition, and decision-making over the years.

These advancements have resulted in the development of intelligent machines capable of performing tasks that were previously thought to be the sole domain of human intelligence.

Some experts believe that AI has the potential to improve human intelligence and augment human capabilities, while others are concerned about the potential negative effects of AI on natural human intelligence, such as job displacement, loss of critical thinking skills, and the perpetuation of biases and inequalities.

As artificial intelligence (AI) continues to advance and become more integrated into various aspects of modern life, it is critical to carefully consider the potential risks and benefits, as well as to develop responsible approaches to its development and use, in order to promote the enhancement and protection of natural human intelligence.

III. NEGATIVE EFFECTS OF AI ON HUMANS

While AI has the potential to improve human intelligence and capabilities, there are a number of negative effects of AI on humans that must be considered. Among the negative consequences are:

- Job displacement: AI has the potential to automate tasks that were previously performed by humans, resulting in job displacement and economic inequality.
- Loss of critical thinking skills: Overreliance on AI can lead to a loss of critical thinking skills, which are required for making complex decisions and problem solving.
- Bias perpetuation: AI systems have the potential to perpetuate existing biases and inequalities, eroding natural human intelligence and reinforcing negative stereotypes and discrimination.
- AI lacks empathy and emotional intelligence, which are required for human-to-human interactions.
- Concerns about privacy: AI can collect and use personal data in ways that are intrusive and infringe on privacy rights.
- Cybersecurity risks: AI systems are susceptible to cyberattacks and hacking, which can have unintended consequences and have a negative impact on human intelligence.
- Artificial intelligence (AI) can limit human creativity and innovation in creative fields such as music and art.
- Overreliance on technology: Overreliance on AI can result in a lack of self-reliance and independence, which can have a negative impact on human intelligence and well-being.
- Unintended consequences: Because AI systems are complex, there may be unintended consequences that have a negative impact on human intelligence and society as a whole.
- Ethical concerns: The development and use of AI raise significant ethical concerns, such as transparency, accountability, and fairness, which require careful consideration and regulation to ensure that they do not negatively impact human intelligence and well-being.

IV. SWOT ANALYSIS OF AI OVER HUMANS

A. Strengths:

- Speed and efficiency: AI can process and analyse massive amounts of data at a rate far exceeding that of humans.
- Precision and accuracy: AI can perform tasks with high accuracy and precision, reducing errors and increasing productivity.
- Repetitive tasks: AI can perform repetitive tasks indefinitely without becoming tired or bored. AI can learn and adapt to new situations and environments, improving its performance over time.
- Automation: AI can automate previously manual tasks, freeing up time for more complex or creative work.

B. Weaknesses:

- AI may be lacking in creativity and the ability to think outside the box.
- Humans may become overly reliant on AI, resulting in a decline in natural intelligence.
- AI may be limited in its decision-making abilities, and it may not always make ethical or moral decisions.
- AI necessitates maintenance and repair, which can be expensive and time-consuming.
- Data bias: AI can be biased by the data on which it is trained, resulting in incorrect or unfair decision-making.

C. Opportunities:

- AI can improve efficiency and productivity in a variety of industries, resulting in cost savings and increased profits.
- New products and services: AI can enable the development of previously impossible new products and services.
- Medical advancements: AI can lead to advancements in medical research and treatment, improving health outcomes for patients.
- Improved safety: AI can improve safety in many industries, such as transportation and manufacturing.

D. Threats:

- Job displacement: Artificial intelligence (AI) may replace human jobs, resulting in unemployment and economic disruption.
- Data breaches and cyber attacks are two examples of privacy and security risks posed by AI.
- Concerns about ethics: AI raises ethical concerns about decision-making, bias, and responsibility.
- Lack of control: As AI becomes more advanced and autonomous, humans may lose control.
- AI can be vulnerable to adversarial attacks, in which it is intentionally manipulated to produce incorrect results.

V. RESEARCH GAP

Increase of Human dependence on Artificial Intelligence

VI. RESEARCH OBJECTIVE

To assess the performance of AI and Natural Intelligence

VII. RESEARCH METHODOLOGY

- **Research Question:** What effect does artificial intelligence have on human natural intelligence?
- **The research design** will be a quantitative study with data collected via a survey questionnaire. The survey questionnaire will be designed to assess respondents' perceptions of AI and its impact on their natural intelligence.
- **Participants:** The participants will be adults aged 18 and up from all over the world. A statistical power analysis will be used to determine sample size in order to ensure that the study has enough statistical power to detect significant differences.

- **Data Collection:** An online survey questionnaire will be used to collect data, which will be distributed via email, social media, and online forums. The survey questionnaire will include questions about the respondents' demographics.
- **Data Analysis:** The collected data will be analysed using descriptive statistics to summarise the demographics, experiences, opinions, and perceived level of natural intelligence of the respondents. Thematic analysis will be used to identify common themes and patterns in qualitative data collected from open-ended questions.
- **Ethical Considerations:** The study will adhere to the ethical standards established by the institutional review board (IRB) and will protect the participants' confidentiality and anonymity. All participants will be asked to provide informed consent before being included in the study.

VIII. LITERATURE REVIEW

A. FINAL INDEPENDENT VARIABLE

MI
Reinforcement learning
Deep learning
Critical Decision making
Critical thinking
Creativity
Human safety
Job displacement
Ethical considerations
Control over AI

B. FINAL DEPENDENT VARIABLE

Natural Intelligence

C. Literature Review

- The article "Stifling artificial intelligence: Human perils" by Gurkaynak, Yilmaz, and Haksever (2016) explores the potential benefits and risks associated with the development and widespread use of artificial intelligence (AI). While AI has the potential to transform many industries and make our lives easier, it also poses serious hazards to human safety, privacy, and autonomy. The authors cite various concerns linked with AI, including employment displacement, bias and discrimination, and the possibility for AI systems to be manipulated for malicious reasons. Overall, the study emphasizes the importance of careful assessment and regulation of AI as it continues to grow.

Gurkaynak, G., Yilmaz, I., & Haksever, G. (2016). Stifling artificial intelligence: Human perils. *Computer Law & Security Review*, 32(5), 749-758.
- Bostrom and Yudkowsky's (2018) chapter "The Ethics of Artificial Intelligence" delves into the ethical considerations surrounding AI, such as how to ensure that AI systems are aligned with human values, how to avoid unintended consequences, and how to ensure that AI is developed and used responsibly, emphasizing the importance of transparency and accountability in AI development.

Bostrom, N., & Yudkowsky, E. (2018). The ethics of artificial intelligence. In *Artificial intelligence safety and security* (pp. 57-69). Chapman and Hall/CRC.

- The essay "Will Artificial Intelligence (AI) Overpower Human Intelligence (HI)?" by Garg, Punia, and Punia (2019). "A Glimpse of Future Business and Education" investigates the impact on business and education. They also mention the possible downsides of AI, such as job displacement and the possibility of AI outperforming human intelligence in certain disciplines. There are potential concerns, and policies and regulations must be devised to ensure that AI is developed and used responsibly and ethically.

Garg, M., Punia, V., & Punia, B. K. Will Artificial Intelligence (AI) Overpower Human Intelligence (HI)? A Peep into Future Business and Education.

- Spector and Ma's (2019) article "Inquiry and Critical Thinking Skills for the Next Generation." While AI has the potential to transform many parts of education, the authors suggest that it is also necessary to keep a focus on fostering human intelligence abilities such as critical thinking, problem-solving, and teamwork. The essay underlines the need of cultivating inquiry-based learning and critical thinking abilities in the next generation, as well as the need to keep an emphasis on growing human intelligence skills alongside the increasing role of AI in education.

Spector, J.M., Ma, S. Inquiry and critical thinking skills for the next generation: from artificial intelligence back to human intelligence. *Smart Learn. Environ.* 6, 8 (2019). <https://doi.org/10.1186/s40561-019-0088-z>

- The paper "Will Artificial Intelligence Surpass Human Intelligence?" by Fang, Su, and Xiao (2018) addresses the potential for artificial intelligence (AI) to surpass human intelligence in the future. The authors then examine the possibility of AI continuing to progress and possibly surpassing human intellect in other areas, such as decision-making and creativity. While super intelligent AI has the potential to provide enormous benefits, such as enhanced decision-making and the ability to tackle complicated issues, it also has the potential to pose major risks, such as AI acting against human interests or making judgments that are difficult to understand or manage.

Fang, J., Su, H., & Xiao, Y. (2018). Will Artificial Intelligence Surpass Human Intelligence?. Available at SSRN 3173876.

- The authors claim that, while AI has made great progress in recent years, it still falls short in many areas, such as creativity, emotional intelligence, and adaptability, when compared to human intelligence. BI has the ability to supplement and enhance AI in order to create more human-like intelligent systems.

Constraints include the brain's complexity and the necessity for interdisciplinary teamwork Lu, H., Li, Y.,

Chen, M., Kim, H., & Serikawa, S. (2018). Brain intelligence: go beyond artificial intelligence. *Mobile Networks and Applications*, 23, 368-375.

- The essay "The Risks of Artificial Intelligence to Security and the Future of Work" by Osoba and Welser (2017) analyzes the potential concerns in the fields of security and the future of work. Possibility of harmful usage by state and non-state entities, as well as job displacement and economic disruption. The authors emphasize the significance of creating risk-management measures for AI, such as initiatives to encourage transparency, accountability, and responsible usage of AI technologies.
- Osoba, O.A., & Welser, W. (2017). *The Risks of Artificial Intelligence to Security and the Future of Work*. Perspective, RAND Corporation: PE-237-RC. DOI: 10.7249/PE237
- The essay "Inquiry and Critical Thinking Skills for the Next Generation: From Artificial Intelligence Back to Human Intelligence" by Spector and Ma (2019) highlights the relevance of inquiry and critical thinking skills. According to the authors, these abilities are critical for establishing a thorough understanding of AI technologies and their potential impact, as well as supporting ethical AI use and development.

The importance of inquiry and critical thinking abilities in preparing the next generation for the challenges and opportunities given by AI is discussed in this article.

Humans and AI must collaborate to develop techniques for encouraging inquiry and critical thinking abilities in the context of AI, as well as addressing the ethical and societal consequences of these technologies.

Spector, J. M., & Ma, S. (2019). Inquiry and critical thinking skills for the next generation: from artificial intelligence back to human intelligence. *Smart Learning Environments*, 6(1), 1-11.

- Using artificial intelligence to "hack" human decision-making and behavior. The book delves into numerous scenarios in which artificial intelligence (AI) could be used to "hack" human decision-making, such as targeted advertising, social media manipulation, and other forms of psychological manipulation.
- Lexcellent, C. (2019). *Artificial Intelligence Versus Human Intelligence: Are Humans Going to Be Hacked?*. Springer.
- Carlsmith's (2022) work, "Is Power-Seeking AI an Existential Risk?" addresses the idea that artificially intelligent systems with a power-seeking goal may represent an existential threat to humanity. AI poses a greater threat to humanity than other forms of AI.

Carlsmith, J. (2022). Is Power-Seeking AI an Existential Risk?. arXiv preprint arXiv:2206.13353.

- It is critical to put human needs and preferences at the forefront of AI development and implementation. The study discusses the ethical challenges associated with the development and deployment of AI systems, such as bias, privacy, and transparency. Vishwarupe, V., Maheshwari, S., Deshmukh, A., Mhaisalkar, S., Joshi, P. M., & Mathias, N. (2022). *Bringing Humans at the Epicenter of Artificial Intelligence: A Confluence of AI, HCI and Human Centered Computing*. *Procedia Computer Science*, 204, 914-921.
- Grace et al. (2018) provide the findings of an AI expert poll to forecast when artificial intelligence systems will outperform humans in certain tasks. The authors hope to bridge the gap between public perception of AI and expert viewpoints in the subject. The findings indicate that experts predict AI systems will exceed humans in all of these categories within the next several decades, with speech recognition being the first area where AI will outperform humans.

Grace, K., Salvatier, J., Dafoe, A., Zhang, B., & Evans, O. (2018). When will AI exceed human performance? Evidence from AI experts. *Journal of Artificial Intelligence Research*, 62, 729-754.

- During the game, the AI system employed a reinforcement learning method to learn from its successes and mistakes. According to the authors, this study shows that AI has the ability to outperform humans in difficult decision-making tasks, which has crucial implications for future improvements in AI technology and applications. They also emphasize the importance of ongoing research and debate on the ethical consequences of AI surpassing human skills in numerous sectors.

Blair, A., & Saffidine, A. (2019). AI surpasses humans at six-player poker. *Science*, 365(6456), 864-865.

- The authors examined the performance of humans and AI agents on a cognitive test battery that comprised activities such as analogical reasoning, logical reasoning, and visual perception, among others. The study discovered that the AI agents performed significantly better than the human participants.

Insa-Cabrera, J., Dowe, D. L., Espana-Cubillo, S., Hernández-Lloreda, M. V., & Hernández-Orallo, J. (2011). Comparing humans and AI agents. In *Artificial General Intelligence: 4th International Conference, AGI 2011, Mountain View, CA, USA, August 3-6, 2011. Proceedings 4* (pp. 122-132). Springer Berlin Heidelberg.

- Jeff Heaton's book "Artificial Intelligence for Humans, Volume 3: Deep Learning and Neural Networks" introduces deep learning and neural networks with a focus on practical applications. The author discusses deep learning principles and approaches such as feedforward neural networks, convolutional neural

networks, and recurrent neural networks. Unsupervised learning, reinforcement learning, and natural language processing are also covered in the book.

Heaton, J. (2015). Artificial intelligence for humans, volume 3: Deep learning and neural networks. by Heaton Research, Inc..

- Potential risks include job loss, privacy problems, and the prospect of AI systems having goals that are incompatible with human values. They argue that a human-centered approach to AI development is required

to ensure that AI is in line with human values and used to benefit society. They conclude that while AI has the potential to be a transformative technology, careful consideration and prudent development are required to maximize its benefits while minimizing its risks. Nowak, A., Lukowicz, P., & Horodecki, P. (2018). Assessing artificial intelligence for humanity: Will AI be the our biggest ever advance? Or the biggest threat [Opinion]. IEEE Technology and Society Magazine, 37(4), 26-34

IX. DATA ANALYSIS

SAMPLE SIZE - 80 RESPONSES

AGE GROUP OF SAMPLE - 20 TO 65 YEARS

Do you think AI has a negative impact on natural intelligence of Humans ?
80 responses

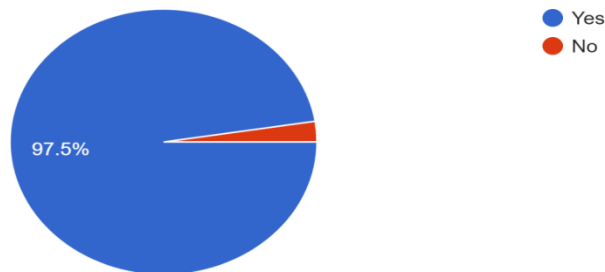


Fig. 1: AI has a negative impact on natural intelligence of Humans

How dependent are you on AI in your personal or professional life?
80 responses

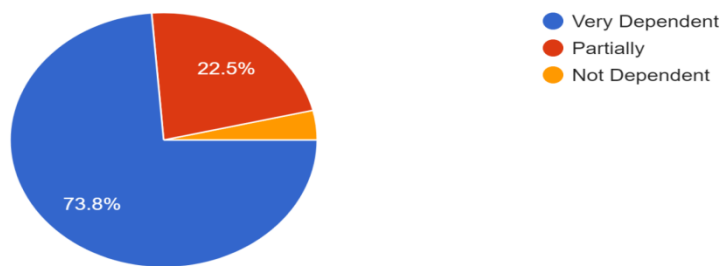


Fig. 2: Dependent are you on AI in personal or professional life

Do you think AI can affect cognitive function in humans?
80 responses

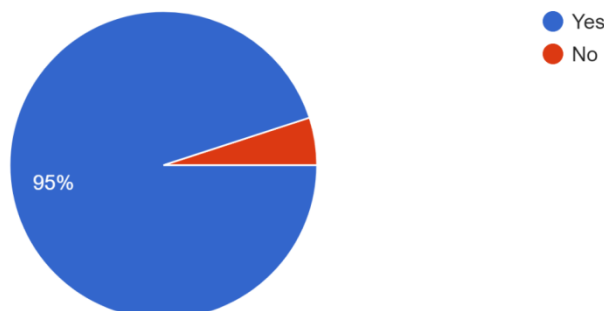


Fig. 3: AI can affect cognitive function in humans

Do you think AI can affect creativity in humans?

79 responses

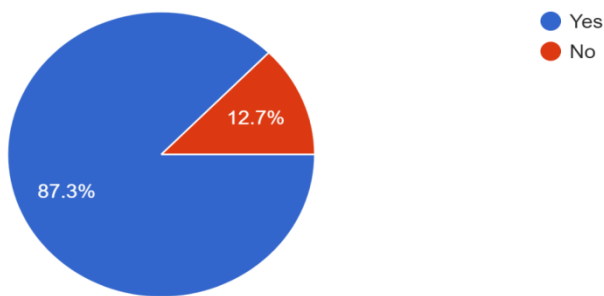


Fig. 4: AI can affect creativity in humans

Do you think AI can affect critical thinking in humans?

80 responses

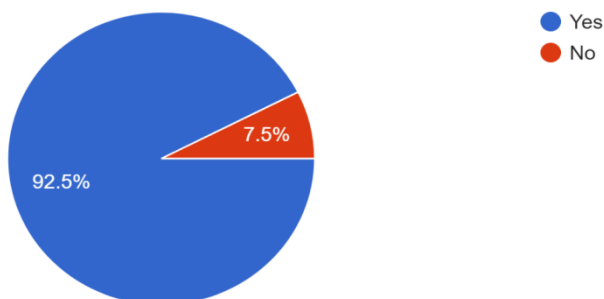


Fig. 5: AI can affect thinking in humans

How often do you rely on critical thinking skills in your personal or professional life?

80 responses

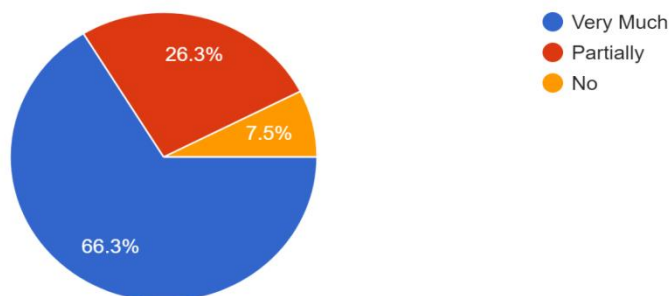


Fig. 6: Critical thinking skills in your personal or professional life

How important is human safety in the development and use of AI?

79 responses

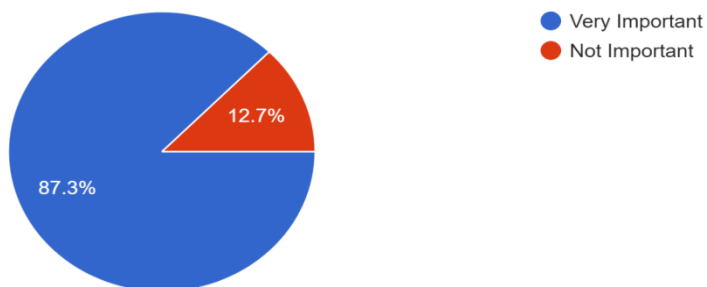


Fig. 7: Human safety in the development and use of AI

Do you think AI will replace your job?

80 responses

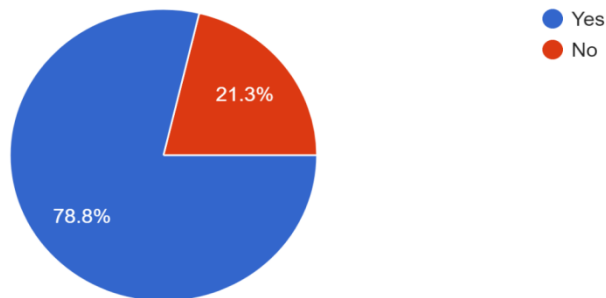


Fig. 8: AI will replace your job

Do you think ethics are important for AI?

79 responses

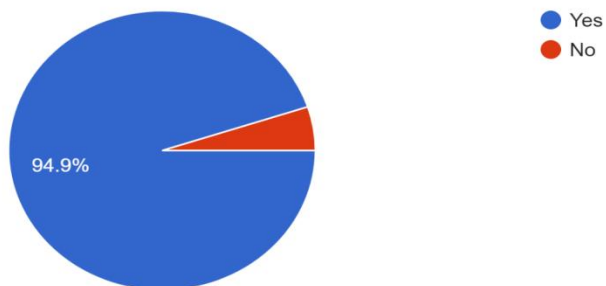


Fig. 9: Ethics are important for AI

Do you think deep learning and Machine learning can help to solve AI problems?

79 responses

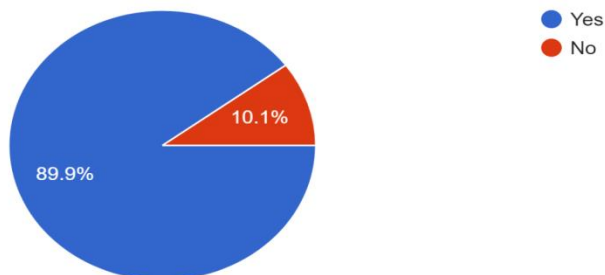


Fig. 10: Deep Learning and Machine learning can help to solve AL problems

Do you think humans should have control over AI?

79 responses

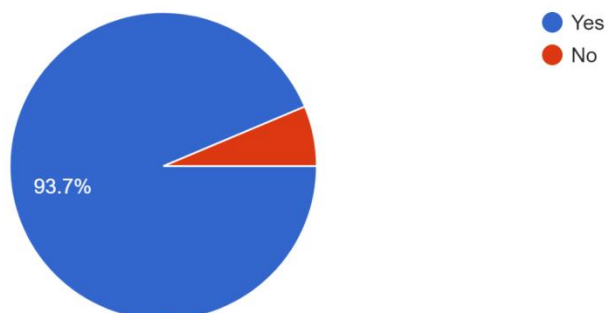


Fig. 11: Humans should have control over AI

Who do you think makes better decisions: humans or AI?

80 responses

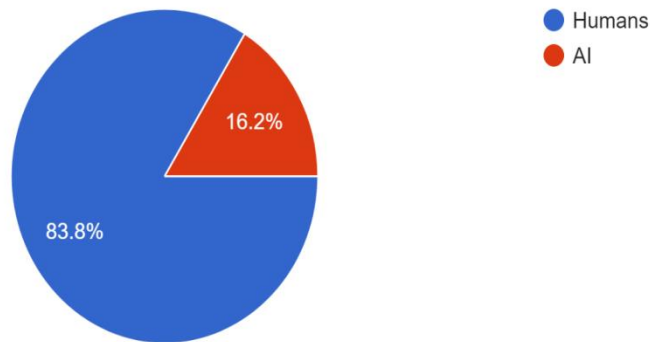


Fig. 12: Makes better decisions: Humans or AI

Do you think AI and humans can work together effectively?

80 responses

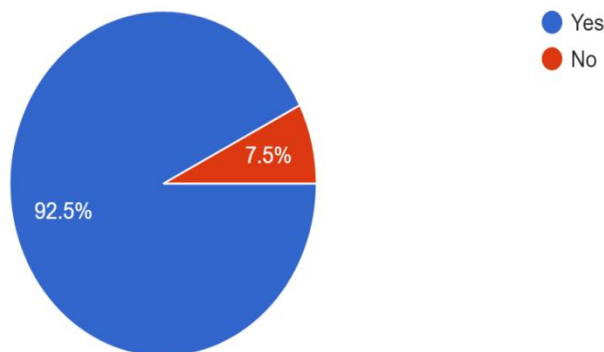


Fig. 13: AI and Humans can work together

X. FUTURE STUDY

We need to explore the areas where AI can't overpower humans and natural intelligence is above artificial intelligence.

XI. CONCLUSION

While AI is capable of performing certain tasks more efficiently than humans, such as data processing and analysis, human intelligence remains superior in many areas. Humans, for example, have emotional intelligence and creativity that are currently beyond the capabilities of AI. Furthermore, AI technology development is not a zero-sum game in which AI gains must necessarily come at the expense of human intelligence. Rather, the two can coexist and complement each other, with AI performing tasks better suited to machines and humans concentrating on areas where our unique abilities are most valuable. Overall, the advancement of AI is unlikely to result in a loss of natural intelligence in humans. Instead, we should focus on harnessing the potential of AI to augment our own abilities and create a better future for all.

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ANNEXURE

Untitled form (Responses)

https://docs.google.com/forms/d/1dCffd7bFfkNM_z2Os0whR1GJgN9bPttzBsnO7vZcQ9Q/edit

LOSS OF NATURAL INTELLIGENCE DUE TO AI

Pls fill it

Name

Short answer text

Age

Short answer text

Do you think AI has a negative impact on natural intelligence of Humans ?

- Yes
- No

How dependent are you on AI in your personal or professional life?

- Very Dependent
- Partially
- Not Dependent

Do you think AI can affect cognitive function in humans?

- Yes
- No

Do you think AI can affect creativity in humans?

- Yes
- No

Do you think AI can affect critical thinking in humans?

Yes

No

How often do you rely on critical thinking skills in your personal or professional life?

Very Much

Partially

No

How important is human safety in the development and use of AI?

Very Important

Not Important

Do you think AI will replace your job?

Yes

No

Do you think ethics are important for AI?

Yes

No

Do you think deep learning and Machine learning can help to solve AI problems?

Yes

No

Do you think humans should have control over AI?

Yes

No

Who do you think makes better decisions: humans or AI?

Humans

AI

Do you think AI and humans can work together effectively?

Yes

No