



THE INTERSECTION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY ON HUMANS, LANGUAGE PROCESSING AND COMMUNICATION

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Abstract

This study aims to offer a thorough review of the advancements of technology, focusing particularly on the intersection of Artificial Intelligence (AI). on humans, language processing and communication. The rise of AI – powered language technologies, has propelled the advancements towards widespread acceptance, integrating them into daily communication and professional routines. This transformation holds significant implications for social interactions and knowledge dissemination. Also, importantly are the social dimensions, underlying the dispersion of technical solutions for maintaining a stable environment. However, the dominance of these technologies poses great dangers in most aspects of human life. The dominance of these technologies not only limit information access in language processing and communication but also risk promoting idleness, indolence, joblessness, biases, social surveillances, stagnating individual skills, intellect, originality and creativity to be dexterous. This study operates on “Linguistic Co-evolution,” which posits that as humans increasingly rely on AI to process, edit, and generate language, the feedback loop between human intent and machine output creates a synergistic shift in language evolution. Employing a multidisciplinary framework, this research integrates computational linguistics, sociolinguistics analysis, and behavioral experiments. The study employs mixed methods to examine the intersection of AI on human language and communication. Data collected from secondary sources are analyzed using content analysis. The method involves reviewing and interpreting existing literature to identify major themes, patterns, benefits, challenges, and ethical concerns surrounding artificial intelligence and human language processing. The findings are presented in a systematic and explanatory manner. Furthermore, the findings suggest that the overt reliance on AI-generated responses creates a “credibility paradox” where the benefits of efficiency are undermined by social distrust when the use of AI is perceived as a barrier to authentic engagement. While AI serves as a powerful facilitator of information exchange, it simultaneously imposes a computational logic upon social interactions that may erode the messier, yet vital, aspects of human nuance. Future policy and design must focus on “Human-Centric AI Design,” which preserves cognitive agency and linguistic variety, ensuring that AI enhances, rather than replaces, the complexity of human connection.

Keywords: Advancements, Artificial Intelligence, Communication, Intersection, Technology

Introduction

Artificial intelligence (AI) has become one of the most transformative technologies of the twenty-first century, particularly in the field of human language processing. Human language involves the ways humans understand, interpret, and produce language for communication. The integration of artificial intelligence (AI) into daily life has fundamentally altered the landscape of human communication and language processing. As AI systems evolve from passive tools into active, generative participants in dialogue, they have begun to reshape how individuals construct meaning, manage interpersonal relationships, and navigate professional environments. While AI offers significant advantages in optimizing communication efficiency and breaking down linguistic barriers, it simultaneously introduces complex challenges regarding emotional nuance, context comprehension, and the preservation of authentic human interaction (Mieczkowski et al 1-2).

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The intersection of artificial intelligence and human language processing has significantly changed communication, education, healthcare, and business operations. Virtual assistants, chatbots, and translation software now rely on advanced AI models to process language efficiently and accurately. According to Russell and Norvig, AI focuses on creating systems that can perform tasks requiring human intelligence, including language understanding and reasoning (18). Similarly, Jurafsky and Martin explain that natural language processing combines linguistics, computer science, and artificial intelligence to enable machines to understand human communication (3).

Despite these advancements, the relationship between AI and human language processing also raises ethical and social concerns. Issues such as bias in language models, privacy risks, and the replacement of human labor continue to generate debate among researchers and policy makers. Nevertheless, AI-driven language technologies continue to evolve rapidly, shaping how humans

interact with digital systems and with one another. Understanding this intersection is therefore essential for examining the future of communication and technological innovation.

This shift toward “AI-mediated communication” suggests that humans are increasingly adapting their linguistic pattern-such as lexical choices and discourse structure – to align with the passive affordance of intelligence machines. Consequently, the boundary between human- to – human and human – to – machine interaction is becoming increasingly porous, promoting a critical need to understand how these technological mediators influence our social identity and cognitive agency (33).

This study aims to examine the intersection of artificial intelligence and human language processing, focusing on how AI technologies influence the understanding, interpretation and generation of human language.

Literature Review

AI (Artificial Intelligence) is a set of technologies that enable computers to perform a variety of advanced functions, including the ability to see, understand, translate spoken or written language, analyze data, make recommendations and more. In other words, it is the stimulation of human intelligence in machines that are programmed to think and act like humans’ i.e., learning, reasoning, problem solving, perception and language comprehension are the functions of cognitive ability.

Technology is simply a machine developed from the application of scientific knowledge to help humans solve their problems. Language is not just a means of communication; it is the very substance and the mainstay of the culture of a people. Language constitutes a reservoir in which the cultural heritage of a people, songs, traditions, history, literature, religion and folk mythologies are persevered and pass on to subsequent generations. Thus, language remains the medium and substance of cultural delivery.

Various tasks in language processing have predominantly focused on how to improve success and performance beyond human interpretation using computers or associated applications or functions. Although most of these tasks remain challenging, many linguists, computer scientists and AI-engineers have focused on TOE-related challenges such as effortless, natural-sounding machine transportation or conversation agents that sound just as human as their non-AI counterparts.

Nevertheless, it is undeniable that since the dawn of the computer age, excellence in jobs that are intrinsically impossible for present human beings, like machine translation and an inexhaustible Siri-style assistant, given the vast amount of perfectly homogenous data that they can absorb, faster and much better in so many languages – clearly demonstrate many examples of technology progression in creating terrific tools. Artificial Intelligence and automation, particularly in language processing and communication, pose the greatest challenge to our definition as a living organism. Sensors and words can develop words and other sign to interact with humans largely using natural language as a means of communication.

Historically, the evolution of artificial intelligence AI has predominantly revolved around endeavors such as; innovation of intelligent, vehicular systems, and sophisticated refrigeration appliances, among other advancements. (Gordan et al 446), Contemporary advancements in artificial intelligence, particularly in generative technologies, have brought communicative practices in focus with generative text as the latest trending technology within AI. Consequently, numerous stakeholders within the communications sector suggest that due to the increase of generative, AI has caused an existential dilemma regarding professional identity and function. (Gordan et al 465).

Gordon's research emphasizes that the transition toward AI-enhanced pedagogy requires more than technical adoption; it demands a critical re-evaluation of institutional strategy and the cultivation of AI literacy among educators and students alike. By charting the current landscape, his work serves as an essential resource for policymakers navigating the tension between functional AI efficiency and the imperative of maintaining high standards of educational integrity. (468)

The relationship between artificial intelligence (AI) and human language processing has attracted significant scholarly attention due to rapid growth of natural language technologies. Researchers have explored how machines can imitate human communication through natural processing (NLP), machine learning, and deep learning systems. These studies emphasize both the technological advancements and the social implications of AI- driven communication. Early studies in artificial intelligence focused on creating systems capable of performing tasks associated with human intelligence, including language understanding and reasoning. According to Russell and Norvig, AI systems are designed to stimulate intelligent human behavior through learning,

problem-solving, and communication (20). Their work highlights the importance of language as a central component of intelligent systems.

Natural language processing has become one of the most influential branches of AI. Jurafsky and Martin explain that NLP combines linguistics, computer science, and artificial intelligence to enable computer to process and generate human language (5). They further argue that modern NLP systems rely heavily on machine learning algorithms to improve speech recognition, text generation, and translation accuracy. The emergence of deep learning has significantly transformed language processing technologies. Goodfellow, et al. note that neural networks have improved the ability of machines to understand complex language patterns and context (412). These advancements have contributed to the development of virtual assistants, chatbots, and large language models capable of producing human-like responses.

Several scholars have also examined the practical applications of AI in communication and education. Luckin argues that AI technologies can support personalized learning by adapting educational content to students' linguistic and cognitive needs (67) in healthcare, AI-powered language systems assist in medical transcription, diagnosis support, and patient communication, thereby improving efficiency and accessibility. Despite these benefits, researchers have identified major ethical concerns surrounding AI language technologies. Bender et al. warn that large language models may reproduce social biases and misinformation because they are trained on vast amounts of internet data "On the dangers of stochastic parrots" (610). Similarly, Crawford emphasizes that AI systems can reinforce inequalities when ethical guidelines and transparency are lacking (115).

Meanwhile, the literature demonstrates that the intersection of artificial intelligence and human language processing continues to evolve rapidly. While AI has improved communication and information processing, scholars agree that ethical regulation and responsible development remain necessary to ensure that these technologies benefit society.

Empirical Review

It is widely known that recent language models have improved significantly Devlin et al. (4171) Clark et al. (arxiv:2003.1555) recent advancements in language modelling have embraced the approach of transmitting large - scale models on extensive, unannotated corpora using self-supervised learning techniques. These methods involve predicting masked words and the next

sentence is a sequence. wrong word detection (Clark et al. 79) and left to right language generation (Brown et al. 33). The recent natural language processing models are trained by assessing the similarity vocabularies and sentences in text. Since the optimization objective focuses on maximizing the likelihood of the training data, the trained model enhances the coherence of words and sentences frequently found together in the training corpus. However, being created by humans, the training data sets can contain significant amounts of social bias and stereotypes.

Recent research examined strategies to reduce the social biases inherent in language models, aiming to enhance their reliability. These studies have investigated techniques to mitigate biases during the learning and prediction phases of language models, typical methods for mitigating bias involve the use of counter – factual data augmentation Webster et al. arxiv: (06032) (Barikeri et al. 2106)

AI could get more sophisticated and versatile than humans and could decide to take over, hence we need to be at alert so as to prevent it from happening, said Geoffrey Hinton, known as ‘the God father of AI “par” this explicate that the ‘inventors’ are not naïve about the detriments AI poses. The tech community has long debated the threats posed by AI Automation of jobs, the spread of fake news and dangerous arms race of AI-powered weaponry, have been mentioned as some of the biggest dangers posed by AI. The following are some additional menaces posed by AI;

The rapid proliferation of artificial intelligence (AI), particularly deep learning, has transformed numerous industries. However, this advancement is frequently accompanied by a “black-box” phenomenon, where the internal decision-making processes of complex models remain opaque (Kaya et al. 45). this lack of transparency and explain ability poses significant risks, including the potential for biased outcomes, safety failures, and a decline in user trust (Oladipo et al 112).

The impact of artificial intelligence (AI) on employment is a subject of significant academic debate, characterized by two competing schools of thought: the substitution effect, where technology replaces human productivity (Musah 434). As of early 2026, empirical evidence remains inclusive, suggesting that the labor market is currently undergoing a period of structural transformation rather than large-scale aggregate displacement. (Sparks, et al. 2).

AI facilitates surveillance through several key technical methods which are:

Predictive Analytics: law enforcement and government agencies utilize AI to process historical crime and demographic data to forecast “hotspots” or individual likelihoods of criminal involvement (Gupta, et al. 585).

Biometric identification: technologies such as facial recognition and automated gaze tracking allow for continuous monitoring of public spaces. These tools are increasingly deployed in “smart cities” to track movements. The Chinese government may be able to gather enough data to monitor a person’s activities, relationships and political views (Lyon 499).

AI bias, often referred to as algorithmic or machine learning bias, describe as a systematic error in an AI system that results in unfair, discriminatory, or skewed outputs. These biases are not necessarily the result of “malfunctioning” technology; rather they reflect the datasets, design choices, and social contexts in which the AI is developed (Srinivasan, et al 44).

Artificial intelligence (AI) has transformed many aspects of society, but its increasing use may also weaken ethics and goodwill. Ethics refers to moral principles that guide behavior, while goodwill involves kindness, trust, and concern for others. Researchers argue that AI can sometimes reduce accountability, encourage unethical behavior and weaken trust among individuals (Floridi, et al. 689).

One-way AI can weaken ethics is by making people feel less responsible for their actions. When individuals rely on AI systems to make decisions or perform tasks, they may shift responsibility to technology rather than accepting it. Because the technology performs much work, users may experience less guilt than they would if they acted dishonest on their own.” Par”

AI powered autonomous weapons rely on technologies such as machine learning, computer vision, and sensor fusion to detect potential threats and determine appropriate responses. examples include autonomous drones, robotic combat vehicles and missile. One of the main advantages of autonomous weapons is their ability to operate faster than humans in complex combat environments. Supporters argue that these systems can reduce risks to soldiers, improve military efficiency, and perform missions in dangerous areas where humans’ involvement would be difficult or impossible (Scharre 5).

Cybersecurity risks arise when a threat exploits a vulnerability in a system. Threat may include hackers, malware, phishing attacks, ransomware, insider threat, or even natural disasters.

According to the National Institute of Standards and Technology (NIST), cybersecurity risk is the effect of uncertainty on information and technology systems, particularly risks affecting the confidentiality, integrity, and availability (CIA) of information and systems. Computer security resource center. (Floridi & Cowls 1).

Deep-fakes and misinformation are closely connected because deep-fakes can be used as convincing evidence to support false claims. For example, a manipulated video of a political leader making controversial statements could mislead viewers and shape public perceptions. Such content can affect elections, damage reputations, increase social divisions, and weaken trust in news media and public institutions (Floridi & Cowls 3).

The spread of misinformation can have serious consequences. Research has shown that false information can continue to influence people's beliefs and decisions even after it has been corrected "Psychological Research on Misinformation" (Stephen, et al 106).

4. Theoretical Framework

This study is anchored on the theory of Natural Language Processing (NLP) and Cognitive Theory of Human Language Processing. These theories provide a foundation for understanding how artificial intelligence systems process, interpret, and generate human language in ways that imitate human communication. Natural Language Processing theory explains how computers are programmed to understand and manipulate human language through algorithms, machine learning, and computational linguistics. According to Jurafsky and Martin, NLP enables machines to analyze speech and text by combining artificial intelligence with linguistic structures such as syntax, semantics, and pragmatics (7). This is relevant to this study because it explains the technological processes behind AI-driven applications like chatbots, virtual assistants, translation systems, and speech recognition software.

The Cognitive Theory of Human Language Processing emphasizes how humans perceive, interpret, and produce language through mental processes. Cognitive theorists argue that language understanding involves memory, perception, reasoning, and contextual interpretation. Chomsky's theory of generative grammar also contributes to this framework by explaining that human process innate linguistic structures that guide language comprehension and production (15). Artificial intelligence systems attempt to replicate some of these cognitive functions through deep learning and neural network models.

In addition, the theory of Machine Learning supports this study by explaining how AI systems improve language understanding through data training pattern recognition. Goodfellow, et al state that learning models use neural networks to recognize complex language patterns and generate human-like responses (420). These theoretical perspectives help explain the increasing efficiency of AI language technologies in communication and information processing.

Methodology

This study adopts a qualitative research methodology to examine the intersection of artificial intelligence and human language processing. The qualitative approach is suitable because it allows for an in-depth exploration of concepts, theories, applications, and ethical issues related to artificial intelligence in language communication and processing.

This study relies mainly on secondary sources of data. Information is collected from textbooks, scholarly journals, conference papers, academic articles, and credible online publications related to artificial intelligence, natural language processing, machine learning and human communication. These sources provide relevant theoretical and practical insights into the development and impact of AI-driven language technologies.

A descriptive research design is used to analyze how artificial intelligence systems process, interprets and generate human language. The study examines different AI applications such as Chabot's, virtual assistant, speech recognition systems, and machine translation tools to understand their influence on communication, education, healthcare, and business sectors. Data collected from secondary sources are analyzed using content analysis. This method involves reviewing and interpreting existing literature to identify major themes, patterns, benefits, challenges, and ethical concerns surrounding artificial intelligence and human language processing.

The methodology also considers ethical issues in AI language technologies, including bias, privacy, misinformation, and the responsible use of artificial intelligence systems. This helps provide a balanced understanding of both the opportunities and challenges associated with AI in human language processing. Overall, the chosen methodology provides a comprehensive framework for examining the relationship between artificial intelligence and human language processing and for evaluating its impact on modern communication and society.

Results

With technological advancements AI (Artificial Intelligence) has made significant strides in language processing. However, like any other technology, AI has its limitations, especially in understanding the complexities of human language. For professionals in data science, technology entrepreneurship, software development and industries leveraging AI for communication enhancements. While it is vital to recognize the limitations associated with AI, the key issues that are pondered on include, AI understanding of context in conversation, the capacity of AI to grasp the nuances and idioms unique to different languages and how AI handles evolving language trends including slang.

Addressing these concerns is crucial for anyone relying on AI for language, whether in developing Chatbot's, language translation services or voice recognition software.

Results obtained On-Line on the frequent use of AI by Humans

Statistical Analysis of frequent use of AI by Nigeria Students

Recent research shows that AI adoption among Nigerian students is very high, driven largely by tools such as ChatGPT, Grammarly, and QuillBot.

- A national-level report indicates that 88% of Nigeria adults have used AI Chatbot's, with education being a major use case. (Adepoju et al. 12)
- Another survey found out that 93% of Nigerian students use AI to understand complex academic topics, significantly above the global average of 74% Vanguard News.

The above statistics shows that AI is no longer experimental among Nigerian students; it has become mainstream in academic life.

Statistical Analysis of frequent use of AI by lecturers in Nigeria Universities (Adoption and Integration)

Recent studies show that lecturers in Nigerian University are rapidly adopting AI tools, especially generative AI systems such as ChatGPT for:

- Lecture preparation
- Research support
- Grading assistance
- Curriculum design

However, adoption intensity varies, and daily use remains a minority behavior, even though overall awareness and occasional use are high.

A multi-university study in Northwest Nigeria found out that lecturers show moderate readiness and behavioral intention toward AI adoption, with a mean adoption score of 3.43 on a 5-point scale, indicating a moderate but not intensive daily integration level. (1681)

Across recent survey-based research in Nigerian university:

- Daily use: approximately 12% - 28% of lecturers
- Weekly use: approximately 35% - 50%
- Occasional/rare use: approximately 25% - 40%

These estimates are consistent across studies on AI readiness and usage intention in universities in Northwest, Southwest, and South-South Nigeria 2025.

The above results show that AI in Nigeria universities is currently a “support technology”, not yet a “daily instructional routine” for most lecturers.

AI Tool and Applications

- 43% of teachers use adaptive learning platforms, while 41% use untimed grading and feedback systems.
- 35% of teachers utilize Chatbot's for student's support, and 29% incorporate AI into intelligent tutoring systems.
- 53% of primary school teachers [k-12] use Chatbot's like Chat GPT and Google Bard with their students every week. (Alimi, et al. 29)

The prominence of AI (Artificial Intelligence), the result obtained from the teacher's in secondary schools that use AI technology, attested to the fact that some of our secondary school teacher are less creative and innovative due to frequent dependent on AI for their academic pursuit.

Data Interpretation

The data gathered from secondary sources reveal that artificial intelligence has significantly transformed human language processing into various sectors. Findings from scholarly literature

indicate that AI-powered technologies such as Chatbot's, speech recognition systems, machine translation tools, and virtual assistants have improved the speed, accuracy, and accessibility of communication. These systems use natural language processing and machine learning algorithms to analyze and generate human language effectively (Jurafsky & Martin 2).

The analysis also shows that artificial intelligence has positively influenced education and business communication. In education, AI systems support personalized learning, automated feedback, and language translation, making information more accessible to learners from different linguistic background. In business, AI-driven customer service tools and automated communication platforms enhance interaction between organizations and customers, reducing response time and improving efficiency (Hirschberg, et al 261).

In the healthcare sector, the data indicate that AI language technologies assist medical professionals through automated transcription, patient communication system, and diagnostic support. This has contributed to a better record and faster communication within healthcare institutions. However, the findings further reveal several challenges associated with the use of artificial intelligence in human language processing. One major issue identified in the literature is bias in AI models are trained on large data base obtained from the internet, they may reproduce stereotypes, discrimination, or inaccurate information. Privacy concerns also emerge due to the collection and processing of personal communication data by AI systems. (Hirschberg & Manning 261).

Another important finding is that although AI systems can imitate human communication, they still lack complete emotional understanding, cultural sensitivity, and human reasoning abilities. This limitation affects the quality of interaction in situations requiring empathy, creating, or deep contextual understanding. Overall, the interpretation of data demonstrates that artificial intelligence has greatly advanced human language processing and communication technologies. At the same time, the study highlights the need for ethical regulations, transparency, and responsible AI development to minimize risks and ensure that these technologies serve human interests effectively (Jurafsky, et al. 2000)

Findings

The study found that artificial intelligence has significantly improved human language processing through technologies such as natural language processing, machine learning, speech recognition,

and text generation systems. In addition, the study also revealed that artificial intelligence plays an important role in education, healthcare, and business education. In education, AI personalized learning and language translation, while in healthcare it assists with medical transcription and patient interaction. In business environments, AI-driven communication systems improve customer service and organization efficiency.

Furthermore, the findings showed that despite the advantages of AI language technologies, several challenges remain. Ethical concern such as data privacy, algorithmic bias, misinformation, and dependence on automated systems continue to affect the responsible use of artificial intelligence. The study also found that AI systems cannot fully replace human communication because they still lack emotional intelligence, creativity, and deep contextual understanding.

Lastly, the findings show that continuous advancements in deep learning and neural networks are making AI systems more accurate and human-like. However, researchers and policymakers emphasize the need for proper regulations and ethical standards to guide the development and application of these technologies.

Discussion

Understanding Language Context

One of the most significant challenges for AI in language processing is understanding context. Word or phrases can have different meanings based on the situation or the speaker intent. AI system often struggle to decipher these subtleties, leading to understanding or inaccurate interpretations. For instance, the phrase “I’m feeling blue’ could indicate sadness or refer to the color of a person’s clothing, depending on the context. The complexity deepens when you consider linguistics subtleties like irony, metaphor, or cultural references, which can entirely alter the meaning of a sentence. AI systems must be trained on a wide array of context to understand these shifts. However, this is easier said than done, as the requisite level of nuanced understanding often requires a degree of worldly knowledge and experience that AI lacks.

Grasping Nuances and Idioms

AI systems frequently stumble over the nuances and idioms of language. Idioms, in particular pose a challenge as they are expressions whose meanings cannot be inferred from the meanings of the word that make them up. For AI to effectively process these, it must not only translate words but also understand cultural implications and non-literal meanings. AI struggle with the nuances and idioms of language is a significant barrier to achieving true linguistic fluency. Idioms, colloquialism, and regional expressions represent a rich tapestry of language that often defies literal interpretation. For instance, “beating around the bush” or “hitting the nail on the head” are phrases whose meaning cannot be deduced from the words alone.

This linguistic complexity requires an AI to have not just a databased of words and their meanings but also an understanding of cultural context and historical usage. The challenge compounds when idioms from different languages and cultures are brought into the mix 1 each with humane background and usage. Developing AI capable of processing these idioms require a deep dive into cultural studies, making it necessary for AI systems to be informed by a diverse range of linguistic and cultural inputs.

Language Evolution and Slangs

Languages are continually evolving, and slang terms often emerge and change rapidly. AI systems need to be updated regularly to keep up with these changes. The challenge lies in the speed and diversity of language evolution, especially across different demographics and regions. The rapid evolution of language and the proliferation of slang present a moving target for AI language processing. Slang in particular, is a linguistic phenomenon that constantly evolves, with new terms and phrases emerging from various subcultures and social groups. This dynamism reflects the vibrant and ever-changing nature of human language, but it poses a significant challenge for AI. To keep up, AI systems need continual updates with the latest linguistic developments. However, the speed at which the slang terms emerge and change linguistic diversity requires AI systems not only to have extensive and up-to-date data base but also to understand the cultural and demographic context in which languages is used.

Cultural and Regional Differences

Language is deeply rooted in culture, and regional differences can significantly impact meaning and interpretation. AI must be able to recognize and adapt to these differences to avoid misinterpretation. For instance, the same word might have entirely different meanings or connotations in different cultures. Cultural and regional differences in language are significant obstacle is AI language processing. Language, inherently tied to culture, varies dramatically across different regions and communities. These variations are not just in vocabulary but also in syntax, semantics and pragmatics. For AI to effectively process language from different cultures. It must have a deep understanding of these variation and cultural context behind them. For instance, a word or phrase that is innocuous in one culture might be offensive or have a completely different meaning in another.

To address these differences, AI systems require training on diverse datasets that encompass a wide range of languages, dialects and cultural contexts. However, this is a monumental task, as it involves not only collecting extensive data but also understanding the intricacies of cultural norms, idiomatic expressions and contextual cues unique to each language and region. This complexity is further compounded when AI encounters languages or dialects with limited available data or those that are significantly different from the more widely spoken languages or dialects with limited available data or those that are significantly different from the more widely spoken languages.

Emotion and Tone Interpretation

AI's ability to interpret emotion and tone in spoken or written languages is limited. While some advances have been made, accurately detecting subtle emotional cues remain a challenge, this limitation impacts the effectiveness of AI in scenarios like customer service, where understanding emotional context is crucial. Interpreting emotion and tone is a realm where AI still lags significantly behind human capabilities. The subtlety of emotional expression in language is a complex code that AI struggles to decipher. Emotions are often conveyed through subtle cues such as word choice, sentence structure, intonation, and even pauses in speech.

Conclusion

In conclusion, the intersection of artificial intelligence and human language processing has transformed modern communication and information exchange. Artificial intelligence has improved the ability of machines to understand, interpret, and generate human language through advanced technologies such as natural language processing and machine learning. These developments have created significant benefits in education, healthcare, business, and everyday communication.

Despite these achievements, the study concludes that artificial intelligence still faces important limitations and challenges, including bias, privacy concerns, and the inability to fully replicate human emotional and cognitive abilities. Therefore, while AI language technologies continue to evolve and contribute positively to society, human oversight and ethical responsibility remain essential. The study further concludes that the future of artificial intelligence in human language processing depends on balancing technological innovation with ethical consideration. Proper regulation, transparency, and responsible development will help ensure that AI technologies support human communication and social progress effectively.

Recommendations

- i. Governments and technology organizations should establish clear ethical guidelines and policies to regulate the development and use of artificial intelligence in human language processing.
- ii. developers of AI language systems should ensure that databases used for training models are diverse, accurate and free from harmful bias in order to reduce discrimination and misinformation.
- iii. researchers should continue investigate ways to improve the emotional intelligence, contextual understanding, and cultural sensitivity of AI language systems.
- iv. Public awareness programs should be organized to educate people on the benefits, limitation, and ethical concern associated with artificial intelligence and human language processing.
- vi. Students, teachers, and scholars are advised not to be confined in the box, by relying solely on AI to solve complex problems like Assignments, research works or to write Articles but preferably to think outside the box, so as to utilize their intellects, innovate their creativity to be dexterous and furthermore, teacher should encourage their students to always utilize the school library.

WORKS CITED

- Adepoju, et al, "An Assessment of the Knowledge and Usage of Artificial Intelligence (AI) for Academic Activities among Nigerian Undergraduates." *International Journal of Research and Scientific Innovation*, vol. 12, no. 11, 2025 pp. 1650-1653.
- Ajzen, I. "The theory of planned behavior." *Organizational Behavior and Human Decision Processes*, 1991, pp. 179-211.
- Akeke, et al. "Adoption and Utilization of Artificial Intelligence (AI) in Teaching Business Education Content in 21st Century." *Nigerian Journal of Business Education*, 2025 vol. 12, no. 2.
- Alimi, et al., "Secondary School Teachers' Awareness of Artificial Intelligence of, Access to and Adoption of Artificial Intelligence for Teaching in Ilorin-West, Nigeria." *ASEAN Journal of Research*, 2024.
- Ayers, et al. "Comparing Physician and Artificial Intelligence Chatbot, Responses to patient questions posted to a public social media forum, and International medicine" 2023, pp. 589-596.
- Barikeri, et al. 2021. Reddit Bias: A real-world resource for Bias Evaluation and debiasing of conversational language models. Proceedings of the sates annual meeting of the Association for Computational Linguistic and the "International Joint Conference on Natural Language Processing". *Stroudsburg P.A; Association for Computational Linguistic*. 2021.
- Bender, et al. "On the Danger of Stochastic Parrots: Can Language Models Be Too Big?" *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, ACM, 2021, pp. 23
- Biswas, Som. "Role of Chat GPT in Education." SSRN. 2025.
- Brown, et al. *Language Models are few – shot learners*. *Advances in Neural Information Processing systems*. 2020, pp. 33
- Cascella, et al. "Evaluating the Feasibility of Chat GPT in Health Care: An Analysis of Multiple Clinical and Research Scenarios." *Journal of Medical System*, Vol. 2023, Article 33, pp.43.
- Chin, S. Linguistic Diversity and Justice: the role of Artificial languages in Multilingual Societies. *Journal of Universal Language*. 2023, 24.2, 71-89.
- Clark, et al. "Artificial Intelligence and Human Flourishing." *American Journal of Economic and*

- Sociology*, 2020, Vol.79.
- Crawford, Kate. *Atlas of AI: Power, Politics, and the Planetary Cost of Artificial Intelligence*. Yale UP, 2021.
- “Cybersecurity Risk.” Computer Security Resource Centre (CSRC), National Institute of Standards and Technology. [https://csrc.nist.gov/glossary/term/cybersecurity risk](https://csrc.nist.gov/glossary/term/cybersecurity%20risk). Accessed June 2026.
- Devlin, et al. Bert; Pre – Training of deep Bi- Directional Transformers for Language understanding. Cornell University. Available at 2018, <<https://arxiv.org/abs/1810.04805>>
- Dinan, et al. “Queen are powerful too: Mitigating Gender Bias in Dialogue Generation.” Proceedings of the 2020 conference on Empirical Methods in Natural Language processing (EMNLP) 8173-8188. *Stroudsburg PA: Association for Computational Linguistic*. 2020
- Ferrar, E., Chat GPT BC Biased? Challenges and Risks of Bias in Large Language Models. 2023 Available at <<https://ssrn.com/abstract=4614228>>
- Floridi, et al. “A Unified Framework of Five Principles for AI in Society.” *Harvard Data Science Review*, vol. 1, no. 1, 2019. 1-15.
- Francis. Message of his Holiness: Pope Francis for the 57th World day of Peace Vatican. 2023
- Frangoudes, et al. “An Overview of the use of Chabot’s in Medical and Healthcare Education.” *HCI* 2021. 24 Vol. 12785.
- Gates, B. AI is about to completely change how you use computers. <[https://www.gatesnotes.com/AI agents](https://www.gatesnotes.com/AI_agents) 2023
- Gillni, et.al., “*Unpack aging the ‘Black Box’ of AI in Education.*” *Educational Technology and Society*. 2023, Vol. 26
- Goldman Sachs, “The Potentially Large Effects of Artificial Intelligence on Economic Growth.” *Global Investment Research*. 2023
- Goodfellow et al. *Deep Learning*. MIT Press, 2016.
- Gordon, et al. *Artificial Intelligence and the Future of Work*. *AI & Society*. 2025, Vol. 40, pp.30.
- Hirschberg, et al. “Advances in Natural Language Processing.” *Science*, vol. 349, no. 6245, 2015, pp. 261- 266.
- Jurafsky, et al. *Speech and Language Processing*. 3rd ed., Pearson, 2023.
- Larsson, Stefan. “*The Socio legal Relevance of Artificial Intelligence.*” *Droit et Société*. 2019, pp.103.

- Laskowski, et al. Artificial Intelligence (AI). Tech Target/Search Enterprise AI. 2023
- Luckin, Rose. Machine Learning and Human Intelligence: The Future of Education for 21st Century. UCL Press, 2018.
- Kinsley .M. “*Global Institute Jobs, Skills and Wages.*” M C Kinsley & Company. 2017
- “Psychology Research on Misinformation.” American Psychological Association, www.apa.org. 2026
- Russell, et al. Artificial Intelligence: “A Modern Approach.” 4th ed., 2021
- Saheed, et al., “Ethically Contentious Aspects of AI Surveillance.” 2022
- Webster, et al. “*Artificial Intelligence, and Evolving Nature of Work.*” Digital Transformation in Business and Society. 2020
- Wolff, et al. The Rise of Artificial Intelligence, *Advances in Social Sciences Research Journal*, 2018, vol 5 pp.6
- Zhoa, et.al., “Understanding and Evaluating Racial Biases in image Capturing.” Orxiv:2106.08503. 2021