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Expanding Horizon of AI: ChatGPT Applications in Healthcare Cybersecurity and Poultry Science

Bimalendu Pendy[1*]

[1]Independent Researcher, 39900 Blacow Road, Apt #58, Fremont, CA, 94538

[1]bimalpandey2320@gmail.com

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Corresponding Author

Bimalendu Pendy

bimalpandey2320@gmail.com

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ABSTRACT

Artificial intelligence (AI) is transforming the various sectors and its applications are wide-ranging, including healthcare cybersecurity and poultry science. This is a review on how AI or rather ChatGPT can be used to better protect data, decision-making, and access to knowledge in these areas. In healthcare, AI helps enhance cybersecurity by detecting anomalies in real-time, modelling potential threats, and assisting communication. In poultry science, AI improves the predictive analysis of disease, the optimization of feed, the control of parameters in the environment and the training of farmers. Multi-disciplinary perspectives unify barriers such as data quality, risk management, ethics and accessibility. Recommendations - such as limitations (including bias, explain ability, and privacy), and future directions (more specialization, increased transparency, co-dependence with the Internet of Things, and equal access) require careful monitoring. The combination of AI and ChatGPT can explain why cross-domain innovation can be developed to enhance resilience, sustainability, and global health security.

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INTRODUCTION

Artificial intelligence (AI) has recently become one of the most influential technologies of the XXI century and influences many industries such as finance, education, agriculture, and medicine. In its essence, AI includes the process of creating systems that are able to accomplish tasks that normally need human intelligence and these include pattern recognition, decision-making, understanding, and predictive analysis [1]. Natural language processing (NLP) is one of the most popular directions of AI since tools such as ChatGPT can serve as a powerful method of communication, knowledge sharing, and decision-making assistance. The flexibility of both AI and large language models (LLMs), including ChatGPT, has provided new opportunities of innovation, especially within key areas of interest like healthcare and agriculture but has also brought about new challenges within the sphere of cybersecurity [2].

It is clear medical systems around the world are getting increasingly digitalized, and the backbone of the modern healthcare industry is electronic health records, telemedicine systems, wearable health monitoring devices, and cloud-based patient information portals. Such digital revolution has enhanced efficient and accessible clinical decision-making accuracy. Nevertheless, it has not only increased the vulnerability of healthcare institutions to cybersecurity threats but it has also opened them up to unprecedented cyber threats [3]. Patient data is a valuable target of cybercriminals and data breaches have the potential to be devastating beyond the financial hit that can span into loss of privacy and trust, as well as patient safety risks. In this sense, AI technologies are not only aimed at making diagnosis and treatment processes more efficient but are used to enhance defense against malicious cyber-attackers [4]. ChatGPT and other AI-based systems have the potential to effectively track online spaces, detect red flags and guide professionals in addressing security concerns in real-time.

Similarly to the issue in healthcare, the farming sector in general and poultry industry in particular has its share of complicated requirements. Poultry science is significant in terms of global food security since it offers a cheap and low cost productions of protein foods. The industry should strike a balance between meeting the requirements of high productivity and animal welfare, disease outbreaks, supply chain efficiency and sustainability [5]. With the introduction of AI in poultry science, the way in which farmers and researchers deal with these challenges is changing significantly. The area is moving towards increased innovation, with such areas as disease prediction models that analyse data on sensors in poultry houses being just one area. Specifically, ChatGPT could become a knowledge support tool to farmers, veterinarians and researchers by providing high-quality expert knowledge, creating education content, and supporting data-driven informed decision-making in

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plain language [6].

The importance of applying AI to both the realm of healthcare cybersecurity and the science of poultry is demonstrated in the fact those two seemingly different fields can be brought under the same analytical lens. This example illustrates the comprehensive nature of AI and its transformative power. There is no doubt that both fields work in quite high stakes: healthcare directly influences human lives, and poultry science contributes to food security and common health by means of being linked to zoonotic diseases. Besides, the two fields pour mountains of data that have to be managed in a safe, smart, and ethical manner [7]. The potential of ChatGPT is that it takes on the strength of synthesising large quantities of information, in real-time communication and aiding humans with decision-making, therefore, it can be useful in many fields of study [8].

The intersection of AI, cybersecurity and applied sciences also brings some concerns related to the ethical, trust and ethical deployment. Failure to use AI data or interpret them properly could result in patient safety breaches in the field of healthcare. In agriculture, excessive dependence on the AI systems without appropriate monitoring could bring in weaknesses or deepen the digital divide existing between the high-tech and resource-strapped farming communities [9]. Thus, all the possibilities are huge, but when using AI tools such as ChatGPT, one should carefully think about the approach that should be taken to ensure that the use is transparent, fair, and aligned with the principles of various sectors in which AI can be beneficial [10].

This review examines the broadening landscape of AI with specific discussions on the ChatGPT application to healthcare cybersecurity and poultry science. By exploring applications, challenges and opportunities along these two critical areas, it highlights the interdisciplinary effect of AI and how collaborative innovation is required. The sections below will discuss the technical basis of AI and ChatGPT, their present and potential uses in healthcare and poultry production, and critically examine the ethical, social and security issues that elude with their adoption [11].

HISTORY OF ARTIFICIAL INTELLIGENCE AND CHATGPT

Artificial Intelligence (AI) is essentially a generalized area of computer science that deals with the development of systems or machines that can perform tasks that usually require human intelligence, e.g. problem solving, learning, reasoning, communication, etc. AI has come a long way, having changed over the last few decades to increasingly more advanced models driven by machine learning (ML) and deep learning (DL) [12]. Such developments have been driven by the rapid increase in data and computational resources and have allowed AI to not only replicate human cognition, but to also outperform humans at specific, task-defined behaviors. In the case of healthcare cybersecurity and poultry science, it is important to understand the premises of AI and its most recognizable natural

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language platform, ChatGPT, to recognize their usage potential [13].

Machine learning algorithms are at the heart of AI, and these learn from examples as opposed to predetermined instruction. Deep learning Deep learning based on artificial neural networks which emulate the structure of the human brain has been especially influential in machine learning. When trained on large data, such neural networks are able to recognize images, find anomalies, predict, and understand human language with superior precision [14]. This capability of autonomous learning would permit AI to be especially useful in dynamic environments, like medical diagnostics or poultry farming, where conditions often change quickly and demand adaptive decisions [15].

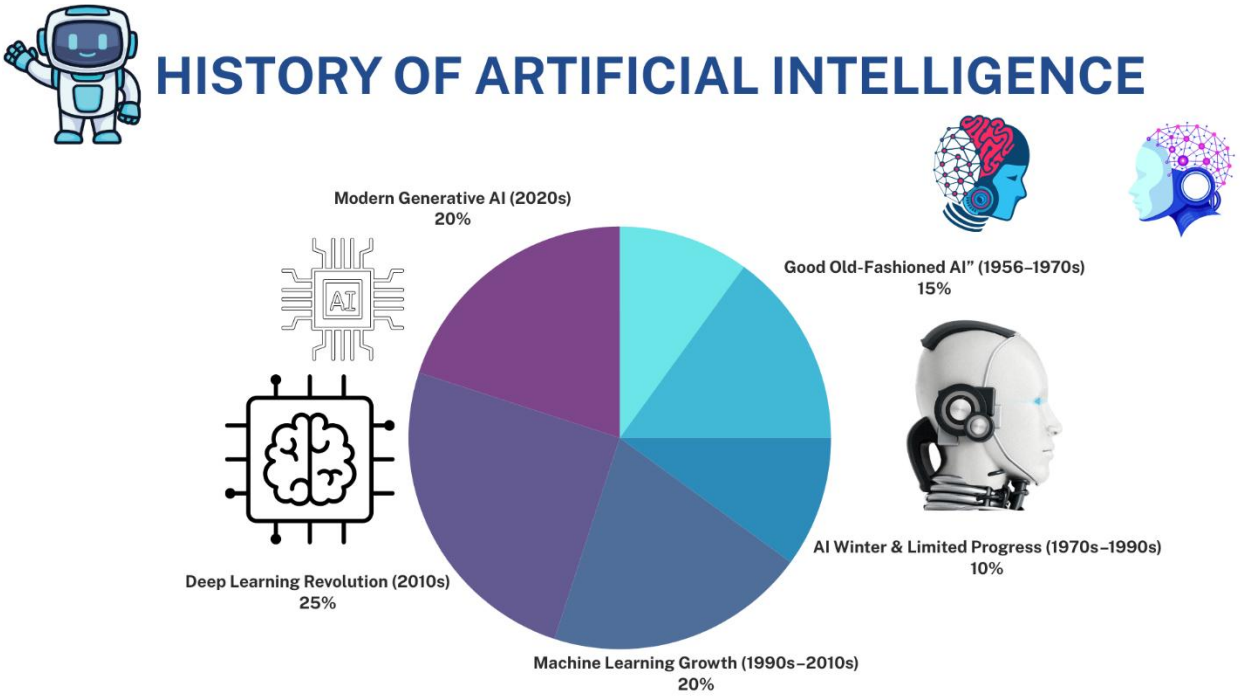

Figure: 1 showing history of AI

Natural Language Processing (NLP) is one of the subfields of the AI that has attracted considerable attention. NLP pays attention to the process of making machines interpret, comprehend, and produce true human language in a manner that is sensible and contextually correct. Earlier NLP systems could only detect keywords or used a rule-based grammar model, but deep learning shook up this area. Very large language models (VLMs), districts of billions of training words and documents, are now capable of creating coherent text, answering complicated prompts, as well as being able to imitate human conversations [16].

Computational modeling, systems dynamics and control algorithms offer significant insight in engineering and other disciplines and much of these capabilities can be applied to contemporary issues in AI-based computer security. As an example, optimization of meshes in computational fluid dynamics determines accurate and efficient simulation of the fluid flow as it is in the case with AI

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models that need to achieve both complexity and efficiencies when working with enormous data on cybersecurity [17]. The control design mechanisms can apply in the scenario of ball-and-beam systems with similarities in the adaptive usage of AI algorithms in adjusting the defensive mechanism to the current situation of cyber-attacks [18].

Experiments on small oscillations of linear systems show that it is the local trace of the small differences that matters, and this resonates with what happens in anomaly detection in cybersecurity where minute deviations indicate what could be an intrusion [19]. Sustainability and resilience continue as the most important qualities in wastewater treatment strategies, like mitigating high BOD levels by storing it and the cybersecurity systems that have to resist endless and highly distributed attacks. Lastly, the ability of robotic manipulator simulation to be accurate in movement and prediction brings the prediction capabilities that AI adds to the intrusion detection, malware analysis and automated response to it [20]. Collectively, these cross-disciplinary studies illustrate the importance of system optimization, control, and predictive models- frameworks ingeniously implemented by AI in the area of digital infrastructure protection against a widely evolving volume and level of complex cyber threats [21].

The ChatGPT, developed by OpenAI, is one of the most prompts LMs. ChatGPT was constructed on the Generative Pretrained Transformer (GPT) model, a kind of deep-learning model, which uses transformers. Transformers take into consideration a concept known as attention which enables the model to give relative weight to the words within a sequence. This helps ChatGPT keep track of context throughout long chunks of text and produce responses that go beyond being grammatically correct in being contextually appropriate as well. ChatGPT can be seen as pretrained on large volumes of data and then fine-tuned on specific tasks; this means that it is usable across many domains, including general conversation, specialized tasks such as healthcare, cybersecurity, and agriculture [22].

The power of ChatGPT is that you can input human language and it interprets this data and generates meaningful outputs on the fly. Consider, as in the case of cybersecurity in healthcare, ChatGPT can help IT professionals craft an incident response procedure or describe a vulnerability in an easy-to-understand language to non-technical stakeholders or model a mock phishing attack. ChatGPT can help farmers and researchers in poultry science by providing the information on how to manage diseases or animal nutrition or bio security [23]. The conversational nature of ChatGPT also means that knowledge is more accessible to the stakeholder than with a static database and this is of great benefit to those stakeholders that lack technical expertise [24].

It is also necessary to point out AI and ChatGPT limitations. These models are not sentient and

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powerful, but they depend on statistical association in their training set. The consequence of this is that ChatGPT can provide false or misleading information that it is highly confident in, which is called hallucination. Also, the use of massive amounts of data brings into question biases in the training material that may unintentionally be affecting decision-making in such delicate areas as healthcare or agriculture [25]. Take, the example of an AI system that incorporates cultural or linguistic biases in diagnosing conditions or advising agricultural practices, etc.; this can be a life and death issue if unrestrained.

Nevertheless, ChatGPT and other AI platforms will continue to evolve and enhance their capabilities over time as they undergo iterative improvement and get access to domain-specific data. There is a growing interest in hybrid modes, where expert-driven knowledge bases are used in conjunction with AI tools such as ChatGPT in order to provide increased reliability and accuracy [26]. In cybersecurity, one application of ChatGPT is automating threat detection by integrating threat intelligence platforms to enhance its capabilities to stay alert to cyberattacks. Likewise, in the field of poultry science, combining ChatGPT with which live data is available in poultry houses would offer more readily deployable recommendations and practices [27].

AI and ChatGPT are built on decades of technology advances in machine learning, deep learning and natural language processing. The systems symbolise a change in zero-sum, rule-based computing to fluid, flexible and interactive intelligence. The challenges to consider with regards to accuracy, ethics, and bias are still present but the benefits of ChatGPT to serve as a conduit between technical information and practical decision-making can be massive [28]. This premise allows it to bring its revolutionary uses to both healthcare cybersecurity and poultry science, two areas that reflect the diversity and intensity of current AI [29].

AI IN HEALTHCARE CYBERSECURITY

The field of healthcare is rapidly becoming increasingly digitalized, with the introduction of electronic health records (EHRs), telemedicine systems, wearable tech, and cloud-based systems that are all becoming a part of the clinical practice and patient management. Though these inventions have led to increased efficiency, accessibility, and better patient outcomes, they have also put the healthcare systems at risks of increased cyber threats. Medical data, particularly sensitive medical data, are one of the most sought-after assets by cybercriminals, as that data can be used to commit identity theft, insurance fraud, or ransom ware attacks [30]. Modern healthcare infrastructure has a level of complexity where clinical, administrative and personal data can all come together, which makes it a plush but susceptible target. In this regard, AI is becoming one of the most effective mechanisms to reinforce healthcare cybersecurity, as they help organizations identify, block and counter threats faster

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and more accurately [31].

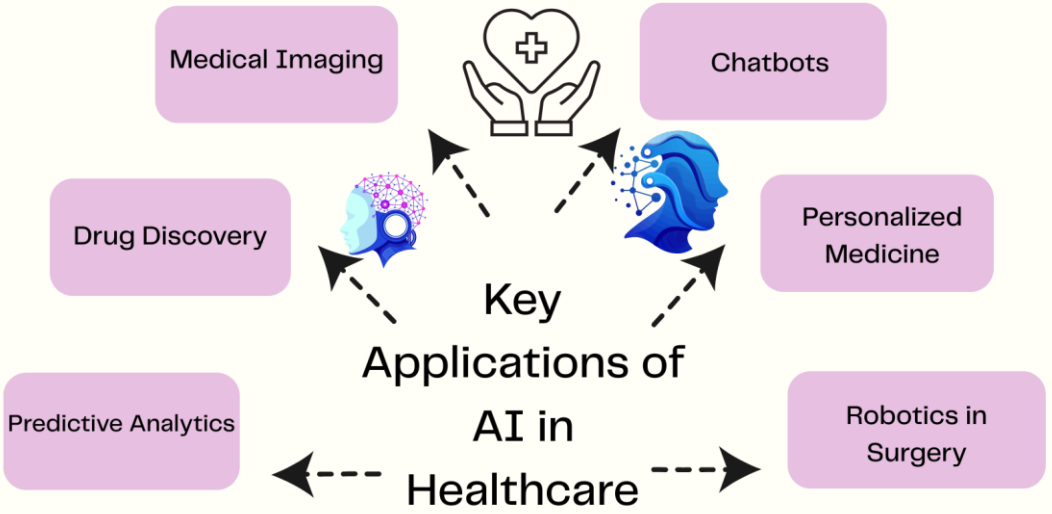

Figure: 2 showing key applications of AI in healthcare

Complexity and volume of data are two of the major issues of healthcare cybersecurity. Healthcare facilities collect terabytes of data every day and the volume of the data is growing, which makes it practically impossible to have a human security expert monitor all possible points of vulnerability. The way that it responds to this challenge is by automating surveillance and anomaly detection [32]. Machine learning algorithms may be trained to recognize anomalous activity on a network through its traffic and mark suspicious user activity or attempts at unauthorized access instantaneously. As another example, AI applications can tell the difference between a physician who needs access to the files of multiple patients and a hacker trying to break into confidential information. This real-time detection saves time and consequently prevents much damage that would otherwise be caused [33].

Predictive threat modeling is another area in which I is finding increasing applications, with systems being trained on the past to foreshadow the possible strengths of an attack. Through the breaches that have happened, AI tools would be able to predict how likely they would be to occur and the kinds of proactive defense that could be used. This prognosis ability is especially useful in healthcare where ransom ware and phishing attacks have turned out to become quite significant [34]. The impact of the AI-driven systems is that it can mimic these threats and prepare institutions in the medical scenes with prepared responses avoiding the need to respond to the threats using reactive models.

The other potential prospect is to use such models as ChatGPT in cybersecurity operations through the application of NLP. ChatGPT can be used as an aid to healthcare IT departments in providing a concise, checklist approach to incident response, drafting security awareness training, or even acting out phishing attacks to train employees on recognizing a malicious email [35]. Moreover, ChatGPT

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may close the disintegration that occurs between cybersecurity specialists and medical providers. ChatGPT can help turn complex security concepts into understandable words: medical staff might not be technically trained but still need to understand the fact the safe digital practices are important [36].

The introduction of AI in healthcare cybersecurity, however, is not a challenge-free matter. The result of the alphaGo human beat machine game is that AI systems can be broken themselves, through adverse adversarial attacks by bad actors who can alter data inputs to cause the wrong decisions to be made. As an example, a malicious program can interfere with the network traffic patterns and fool an AI-based intrusion detection system [37]. AI models also need huge volumes of high quality data to train, and this implies patient privacy and regulatory compliance concerns. Healthcare organizations have to meet the requirement of advanced cybersecurity levels with a strong upholding of legislations like HIPAA (Health Insurance Portability and Accountability Act) or GDPR (General Data Protection Regulation). [38]

The other issue is the concern of explain ability and trust. Most AI systems are black boxes, which means that the operators have no logs or clear understanding how and why they came to the conclusions presented to them. In an arena as delicate as medical, decision-makers will have to be in a position to justify and explain the cybersecurity defense. XAI could be deployed in cybersecurity models in order to drive trust and accountability [39]. These shortcomings notwithstanding, the possible positive impact of AI in healthcare cybersecurity is high. Cyber-attacks are becoming more and more sophisticated, and traditional defense approaches cannot serve the purpose any more. It allows us to scale and be adaptable as well as efficient in a way that human-only systems cannot. The ability to identify anomalies in real-time, predictative modeling, and the use of conversation intelligence tools such as ChatGPT provides a multi-level approach to healthcare cybersecurity that focuses on both technical and human aspects of the problem [40].

I will automate the strategies that healthcare organizations utilize when it comes to cybersecurity through advancing detection, prevention, and response efforts. Peering into the crystal ball, ChatGPT, with its potential to ease the communication process and aid in decision-making, will eventually become a worthy addition to the cybersecurity arsenal. However, potential issues surrounding adversarial threats, data privacy, and transparency needs to be addressed in order to implement it [41]. Healthcare providers can enhance their cybersecurity strategy by incorporating AI and avoid a situation where patient information leakage casts a shadow on the digital healthcare promise.

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USE OF CHATGPT AND AI IN POULTRY SCIENCE

The poultry sector has become one of the most dynamic and indispensable segments of the agriculture industry that has been playing a critical role in the global food security and provision of affordable source of proteins to billions of global citizens. Not only is poultry production the driver of livelihoods in the rural setting, it is also an industry that is faced by a number of challenges relating to outbreak of diseases, biosecurity, environmental sustainability and animal welfare demands by the consumer [42]. Historically, the industry has been using manual observation, experience of the vets, and statistical predictions to make the correct decisions. Nevertheless, the development of Artificial Intelligence (AI) is changing the poultry science to allow precision farming, forecasting analytics, and more optimized resource usage. The automated tools that have drawn particular interest include the ChatGPT that can provide a conversational, accessible, and knowledge-based farming, veterinary, and research aid [43].

Among the most promising approaches to AI in poultry science is the disease detection and prevention. Poultry flocks are susceptible to a large variety of pathogens including the avian influenza, the Newcastle disease and also to bacterial processes like Salmonella. The speed of detection and containment is essential to prevent disastrous losses and to prevent zoonotic spillover causing threats to the health of the population [44]. Designs that use computer vision with the help of AI, such as camera-based systems in poultry houses, can monitor video and alert caregivers to abnormal bird behavior, like decreased mobility rates, and alterations in feeding habits, or respiratory distress.

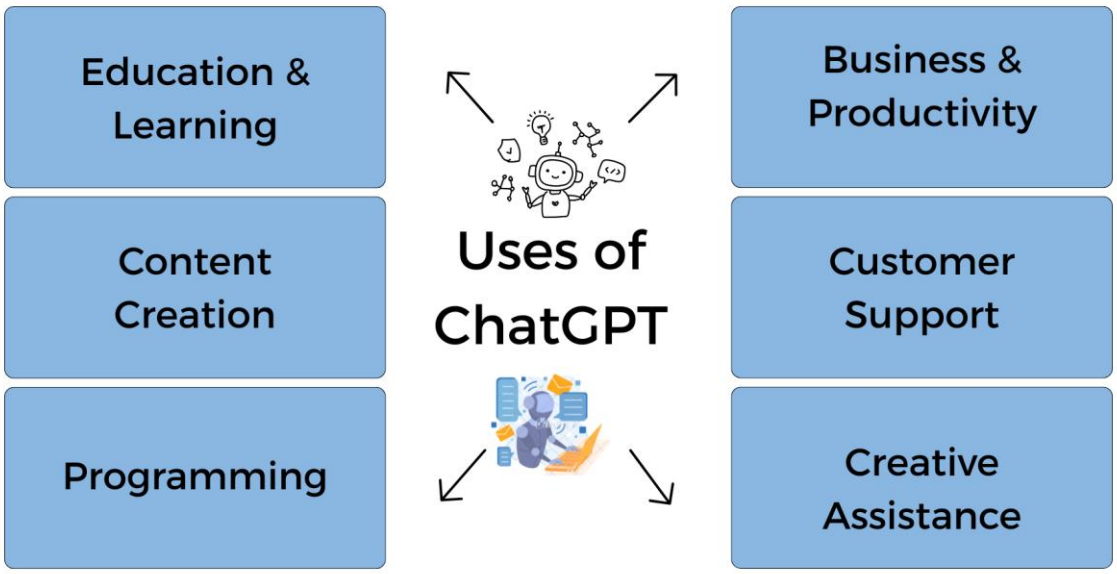

Figure: 3 showing uses of ChatGPT

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Prediction of the probability of occurrence of diseases based on environmental conditions, feed quality or the density of the birds could also be made using machine learning models trained with historic outbreak data [45]. By integrating ChatGPT into this framework, it will expand the system to increase its accessibility, because it is able to translate technically-focused data into feasible suggestions on what farmers should do in the current moment. As an example, ChatGPT might assist a farmer with which biosecurity measures to take in the short term when an infection risk occurs [46]. Nutrition and growth optimization is another very important area. The Feed cost is the highest single part of the poultry production and the efficiency of the process of feed use is a major factor in profitability and sustainability. The AI devices are capable of examining data collected by feed intake sensors, growth history, genetic data to suggest accurately matched feeding plans on a flock-by-flock basis. ChatGPT can become a dynamic informant, responding to farmer questions on feed formulations, explaining laboratory results on quality feed and providing cost-efficient substitute without affecting bird health [47]. The application is particularly useful in areas where it is difficult to get access to poultry nutritionists and experts since ChatGPT can gain access to expert knowledge and even assist small and medium-sized producers [48].

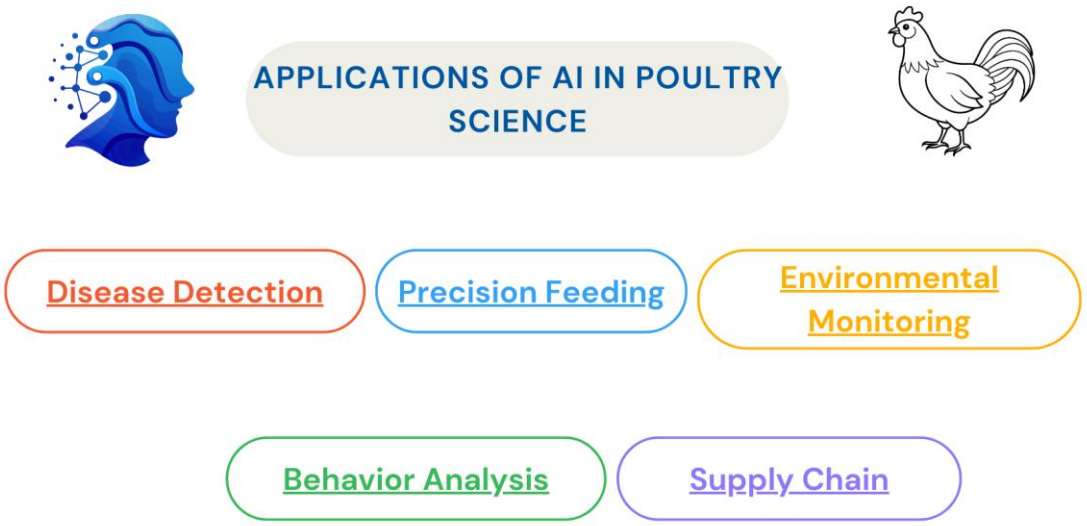

Figure: 4 showing applications of Ai in poultry science

Environmental management is also being transformed drastically in the poultry house by the use of I. Such sensors as those that observe temperature, humidity, air quality, and lighting are becoming more and more combined with AI algorithms to ensure the most comfortable living space. Lack of good environmental control subjects birds to stress resulting in inefficiency and predisposition to disease [49]. With sensor data analysis, AIs can automatic make adjustments to the ventilation or lighting systems to maximise growth rates and welfare. ChatGPT supplements those systems with

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easy-to-grasp interpretations of data, troubleshooting information when conditions are not optimal, and suggestions on the best evidence-based practices on housing management [50].

Besides their use on-farm, AI and ChatGPT are also being used in supply chain management and market forecasting. Poultry production is low-profit margin and it is essential to match the supply to the market demand. Machine learning algorithms can use market trends, feed prices, and consumer preferences in determining demand and vertically communicating the same in planning the production [51]. ChatGPT can repackage and deliver such insights to producers in simplified form, such as the creation of short summaries of complex market reports, the development of simplified decision trees, and through multilingual support of international trade negotiations [52].

Notably, AI and ChatGPT can as well be used in education and capacity building activities in poultry science. Most producers of poultry, particularly in the developing world do not have access to any form of formal training or extension services. ChatGPT as an AI officer can work as a virtual extension officer that provides real-time answers to questions by farmers, and generate training materials, as well as role-playing situations management in farms [53]. It is a useful tool in affecting knowledge gaps in various settings because of its capability to work in different languages.

However, there are difficulties when it comes to using AI in poultry science. Data used to establish reliable AI systems are highly voluminous and only valid where they are collected as opposed to low-resource settings. Also, there is a danger of placing too much trust in AI without sufficient human control and this may encourage mismanagement in case recommendations are taken as gospel without subjecting them to criticism. Also, the digital divide in charging small-scale farmers and those with industrialized operations must be taken into consideration when incorporating digital technologies to poultry farming [54].

Innovation of new drug delivery systems such as organogels, phytosomes, supersaturable self-microemulsifying systems and cubosomes presents how optimization and nanotechnology is transforming the therapeutic applications especially that of increasing bioavailability, specificity, and controlled drug release of active elements [55]. Phytosomes can allow natural phytochemicals to be better utilized in cancer treatment (by improving their solubility and stability), controlled release organogels provide a steady and sustained drug release suitable in chronic conditions and organogels that allow aqueous drugs to be tuned to specific absorption rates [56]. Likewise, lipid nanocarriers such as the supersaturable microemulsifying systems, and cubosomes with their targeted delivery potential bolster the oral availability of poorly soluble drugs such as itraconazole, and in cancer treatment and beyond [57].

These inventions show how engineering and optimization methods are effective in benefiting

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healthcare. Interestingly, such biomedical achievements can be comparable to the involvement of artificial intelligence in poultry science where optimization, managed monitoring, and accuracy in the provision of resources play key roles [58]. Similar to the use of nanocarriers to deliver therapeutics to the level of the cell, AI is used to introduce precision in feeding and monitoring health and predicting diseases in poultry farming. Both spheres are focused on efficiency, flexibility, and sustainability of provisiong lifesaving medicine or food security and animal welfare through smart farming systems [59].

The role of AI and ChatGPT in poultry science is evolving to incorporate better disease management, more efficient nutritional development, better control of the environment, and leaner supply chains. Specifically, ChatGPT removes knowledge barriers and makes knowledge everyone can access and use to make decisions through a chat-like interface, useful in both big commercial farms and smallholder farms [60]. Although obstacles exist regarding the quality of data, the price tag, and control, the groundbreaking opportunities offered by AI concerning poultry science cannot be neglected. Poultry industry will be able to move towards a more sustainable, efficient, and resilient better future, through the integration of intelligent systems with theknowledge of fine farmers [61].

CROSS-DISCIPLINARY INSIGHTS

On the surface, healthcare cybersecurity and poultry science may appear to live in completely different worlds--one is concerned with the privacy and integrity of patient data and digital systems, whereas the latter is thinking about how to increase the efficiency of production, health, and welfare of birds. Nevertheless, through the perspective of Artificial Intelligence (AI) and AI-driven tools, like ChatGPT, the fields start to show striking similarities [62]. Both work with complex systems and large amounts of data, and these systems require rapid, reliable decision-making in a situation where failing to make the right choice can have a very significant impact. The variety of findings across disciplines helps point out the ways in which what has been learned in one area can be applied and applied to inform and enhance practices in the other, a source of current innovation and interdisciplinary collaboration [63].

One of such areas of convergence is the use of large-scale data analysis. Medical patients, images, wearable monitor readouts, and genetic information will create enormous amounts of data that can be managed with AI. In much the same manner, the field of poultry science generates terabytes worth of data, including sensor readings in poultry facilities to genomic sequencing of flocks, market trends, and feed efficiency statistics. Both disciplines are grappling with data that is characterized by high volume, velocity and variability; in other words to extract useful insights out of this data [64]. The health monitoring applications used today in healthcare cybersecurity, like AI systems trained to

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detect anomalies, can thus spawn counterparts in poultry farming (detecting unusual behavior of birds or environmental changes that indicate a possibility of the onset of a disease). On the other hand, predictive modeling tools that are regularly used to predict an outbreak of a disease in farming or the price movement in the farm sector can also be modified to predict cyberattack patterns in healthcare [65].

The other common lesson concerns risk management in an uncertain situation The healthcare cybersecurity risks professionals grapple with on a daily basis involve the constant compromises of patient care and data security, more so the need to establish cyberattacks even when signs of this may appear too slight or ambiguous [66]. In poultry science, decisions have to be made in the face of uncertainty, in terms of disease outbreaks, ebbs and flows in feed prices or changes in climate. In both settings, predictive tools are necessary because they will help reduce risks and aid in decision making [67]. EDWs are of use in both environments, with AI being used to forecast ransomware attacks on a hospital or monitor conditions where avian influenza might thrive. Through the act of learning, both industries will be able to perfect methods of dealing with uncertainty as a result of incorporating real-time monitoring, predictive modeling and decision-support capabilities [68].

The other area of overlap is human factors and accessibility. In healthcare, frontline workforce, like nurses or physicians, usually do not have strong technical cybersecurity experience. Also, a considerable number of poultry farmers who are mostly smallholders in less developed territories, might not possess a sophisticated education in the fields of veterinary science, bioinformatics and data management. Orientation ChatGPT conversation interface is used as a unifying tool [69]. ChatGPT helps fill the knowledge divide between technical professionals and practitioners in both spheres by re-presenting complex data in an understandable form [70]. To give just one example, it may be used to help a health clinician to learn about cyber weaknesses without the need to know much IT, or to help a chicken farmer interpret feed conversion ratios and biosecurity reports. The democratization of knowledge creates more inclusive and stayable systems in various spheres [71].

Cross-disciplinary application can be applicable to ethical and regulatory issues as well. Both healthcare and poultry industries have to face the challenge of verifying a certain aspect of ethics in terms of data privacy, safety, and fairness. In healthcare, very stringent laws like HIPAA and GDPR come into play, which only allow the use of patient data under guidelines of confidentiality and consent [72]. The ethical aspects of the poultry science entail animal welfare, sustainable environmental efforts and equitable opportunities on AI technologies. Borrowing among ethical systems may produce stronger guidelines. As an example, increased attention to transparency and accountability in the medical AI can guide the establishment of similar principles in agricultural AI,

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such that the recommendation is driven by animal welfare and sustainable agriculture in addition to productivity [73].

The two worlds indicate the value of resilience to systemic threats. Healthcare is being targeted by cyber-attacks susceptible to lock hospitals, whereas the poultry industry is prone to pandemics such as avian influenza that can impede food security. The answer to that is that through enhanced surveillance, rapid response, and the ability to make decisions in critical situations, IAI offers a shared solution to the problem [74]. Research teams that involve cooperation between health care cybersecurity professionals and agricultural scientists may yield comprehensive approaches toward addressing systemic risks that cut across both human and animal health and the cybersecurity of the health care system-a similar camp that the One Health adoption concept has adopted that the health of people, animals, and the environment are interdependent [75].

Although separated in their scope, healthcare cybersecurity and poultry science rely on data-driven decision-making process, risk management, human-focused tools, ethical considerations, and individual resilience to system threats. AI and ChatGPT represent two shared characteristics, and their tools can be customized to suit the problems posed by the various business sectors. The two fields can potentially make advancements as far as efficiency, safety, and sustainability are concerned by creating cross-disciplinary dialogue [76]. This synthesis is an indication of the wider reality that AI does not exist in a vacuum, and the future of this technology is its potential to be an interdisciplinary solution that encompasses a wide range of needs and challenges suitable to a global setup [77].

LIMITATIONS AND ETHICAL ISSUES

Although the role of Artificial Intelligence (AI) and conversational models, including ChatGPT, because of their great potential in enhancing healthcare cybersecurity and poultry science, is growing, their application is not without weaknesses and ethical challenges. Those concerns need to be taken seriously to have AI-based systems effectively used in various sectors in responsible, safe, and equitable ways [78]. Blowing off such concerns would betray trust, further compromise weaknesses, and increase inequalities instead of bringing the promised merits.

The main limitation is in data quality and availability. The reliability of I systems is no better than the input information. In health, incomplete or biased patient information could be used to make poor risk predictions to cybersecurity or flaw a decision support [79]. Another example in poultry science is that there is likely to be inconsistency on how the data is gathered, especially on small farms that have limited digital infrastructure, making predictions of disease or precision in feed optimization models less precise. The presence of poor-quality data may lead to giving a false sense of security where the outputs of the AI may seem authoritative, but in fact, are misleading [80].

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Neighboring to it is the question of prejudice and equality. Unrepresentative datasets put AI models trained on such datasets at the risk of perpetuating those biases. In healthcare cybersecurity, it could become a scenario where threats are prioritized more based on trends in hospitals with better resources leaving smaller and rural organizations exposed [81]. The application of AI in poultry science may pose biasness on intensive commercial producers without considering the small scale farmers. Unless special care is taken, AI may further widen gaps in the two sectors [82].

The second key shortage is the inability of explainability in a variety of AI systems. Deeper learning models are oftentimesblack boxes; that pose the challenge of uninterpretable decisions, even by their own developers. In such sensitive operations as healthcare, this lack of transparency is a risk: when an unusual network situation is detected by a cybersecurity system, clinicians and information technology personnel have to know why it is unusual to take the correct action [83]. Farmers need to understand the basis on which an AI system recommends a change in feed composition or environmental settings in poultry science. Lack of explainable AI (XAI) will decrease trust and constrain adoption and eventually risk resistance by practicing professionals that value clarity in decision-making [84].

There are gravest ethical and privacy issues also. Healthcare data ranks as one of the most sensitive personal information, and when used to train AI models, there are certain questions regarding consent, ownership, and the adherence to potentially applicable regulations, such as HIPAA or GDPR. Loss of such data can be disastrous to patients [85]. In a poultry science, data are not as personally sensitive as in other areas; however, ownership and access maters are of equal concern. Farmers might fear that once the information is boosted by aggregate data by corporations or other third parties AI providers, it might fall victim to exploitation or a decrease in competitive advantage [86].

Another possible ethical issue is over dependence on AI. Although AI and ChatGPT have great ability to contribute to the decision making process, they are not an alternative to human experience. In medical care, unquestioningly acting on AI-based cybersecurity advice and not seeking professional advice may jeopardize patient safety [87]. In poultry farming, overreliance on AI may deskill farmers rendering them incapable in the situation of an AI breakdown. Creating a balance between human judgment and automation is the pathway to staying resilient [88].

Price and availability are an issue. Further AI systems are costly in terms of finances and equipment as well as human resources. This can restrict their use to more well-off hospitals and large-sized poultry farmers, leaving smaller establishments or farms out. The digital divide poses a threat of disparities such that only privileged stakeholders take advantage of AI-driven innovations [89]. As amazing as the possibilities offered by AI and ChatGPT can be, the issues of limitation and ethical

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considerations should not be overlooked. Quality and representative data; explain ability; privacy protection; overreliance and enhanced accessibility are all essentials. Integrating ethical frameworks and inclusive design in the development of AI can help the stakeholders maximize the advantages of AI without causing harm to fairness, trust, or human dignity [90].

FUTURE DIRECTIONS

The adoption of Artificial Intelligence (AI) and conversational applications like ChatGPT in the fields of healthcare cybersecurity and poultry science has just begun, and there are still great opportunities to exploit in this scenario. In the future, the two industries might be developing in terms of greater technological complexity, ethical operation, and the presence of interdisciplinary research. It is needed to explore these pathways to the greatest benefit with the minimized risks [91].

One of the directions is the domain-specific AI development. Although ChatGPT is a general purpose language model it can provide results which are not very precise in specialised areas like healthcare cybersecurity or poultry science. Further initiatives might include the refinement of ChatGPT using cleaning, domain-specific data to represent the best accuracy and reliability [92]. In the case of healthcare, it might involve practice on anonymized cybersecurity incident records, medical device vulnerability reports, and healthcare-related regulatory frameworks. In poultry science, professional training may involve information concerning disease trends, feed ratios, and handling of the environment. Dedicated models would guarantee the contextual-dependency of outputs, and their action ability [93].

The other potentially successful avenue is the development of explainable AI (XAI). Due to an increase in dependence on AI, transparency is going to become an important factor in restoring trust within the health synthetic community, agricultural domain, and government circle. Future AI systems have to do more than output recommendations and should clearly explain their reasoning [94]. An example is an AI system that detects a potential cyber intrusion in a hospital should clarify what data points caused the alert to be raised offering an opportunity to the IT staff to confirm the trigger. In the same way, an AI system to suggest a change in poultry feed should highlight the aspects that informed its decision-making, e.g. growth rate, feed quality, or environmental stress factors. AI can ensure that will enable AI to be a genuine companion, instead of the unknown in a black box [95].

One more promising direction is integration with the Internet of Things (IoT). Both 医病 hythm Clearance and poultry farming are experiencing an increasingly heavy dependence on sensor technologies that produce real-time data. Wearable devices and smart hospital systems offer non-stop monitoring of a patient and a network in the healthcare sector [96]. In poultry farming, IoT devices will monitor the behaviour of a flock, conditions inside the homes and the amount of feed that is

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consumed. It can be predicted that using AI and ChatGPT in conjunction with these IoT systems to build intelligent ecosystems that can track, analyze and act independently will be the future of IoT. ChatGPT may serve as an interface between these systems and stakeholders, where human users can ask questions about the current conditions in real-time and get guidance in understandable and evidence-based advice [97].

Also in the future, emphasis would be placed on cybersecurity resilience in AI itself. It can be suggested that AI as a prominent defense strategy in the healthcare sector will attract adversarial attack. The future of research Artificial intelligence should be made less vulnerable to manipulation [98]. This will entail the creation of safe training procedures, testing procedures in an adversarial setting, and continuous learning processes that will be subject to the changing nature of cyber threats in target platforms. This same strength of resilience will be needed in poultry science, as AI systems installed along production chains could be used to bad ends by malicious actors unless adequately secured [99].

The other vital trend is globalization and fair access. Both the health and the agricultural sectors are international undertakings, which impact on both health and food security of the population. The aim of future planning should be to make sure that AI technology is not limited to big hospitals or to large poultry farms but is within easy reach of small hospitals and smallholder farmers and rural clinics [100]. This can include implementation of affordable AI-based systems, multilingual ChatGPT, and open training data. International cooperation would wither uniformity in moral systems and excellent practices, discouraging diversity along regional lines [101].

One section that is going to increase in the future is cross-disciplinary innovation. Healthcare cybersecurity and poultry science have the same issues such as the data management, risk prediction, and resilience, highlighted above. Joint research that integrates specialists in the two fields has the potential to produce the new tools and strategies that will benefit both sectors simultaneously [102]. As an example, forecasting of cyber-attacks could be improved using predictive modeling methods being developed in the agricultural industry, and data integrity in the poultry supply chain may be improved using cybersecurity resilience guidelines [103].

The future of ChatGPT and AI in healthcare cybersecurity and poultry science will be characterized by specialization, transparency, and integration into the IoT, resilience, and inclusivity and interdisciplinary. In exploring these avenues, stakeholders can use AI not only to solve the current problems but to develop systems that are sustainable, equitable, and adapt to changing needs of health, food and security [104].

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CONCLUSION

Artificial Intelligence (AI) has gone through a rapid transformation and has already become a viable tool that can transform various sectors of human life. Its technologies used in healthcare cybersecurity and the field of poultry science are just some of the ways that technology can bring about a step change in an otherwise unrelated field. The cornerstone of this revolution is ChatGPT which is a large language model capable of processing, discovering and communicating complex information in a human-like fashion. This review has analysed the ever-proliferating applications of AI and ChatGPT in two such essential areas, not only highlighting the possibly important advantages but also indicating the adverse and ethical issues that come along with implementing these technologies.

Digitization in healthcare has enhanced service delivery, access, and patient outcomes but the risks of cyber threat have created a fertile environment. Patient records, medical imaging and connected health devices are the new waves of targets that malicious actors are after and whilst breaches may represent a risk to privacy, more seriously they present risks to patient safety, as well as institutional trust. AI provides solutions that a human cannot, allowing role out of anomaly detection in real-time, threat modeling that is predictive, and an automated incident response. ChatGPT specifically brings value in its ability to democratize cybersecurity knowledge- making the area less technical and making it easier to educate employees, as well as help non-technical professionals in healthcare engage and have meaningful interactions with cybersecurity measures. These donations make a positive difference in the world of a sector where the stakes are very high.

The same technological revolution is overturning poultry science. Disease outbreak and biosecurity threats to the poultry industry are some of the challenges that the industry grapples with, including the increased consumer demand on animal welfare and sustainability. In this way, AI is used in precision agriculture, diagnosing diseases, nutrition and what to feed, and environmental conditions of flocks to make management more intelligent and efficient. The role of ChatGPT is also quite impressive: it can be used as a virtual extension agent that provides farmers with expert knowledge in real-time, creates training materials, and helps fill in the knowledge gap that might exist between scholarly research findings and the reality of farming. ChatGPT can help revolutionize how producers both on an industrialized level and smallholder farms access higher-level knowledge to enhance productivity, animal welfare, and sustainability.

Both have severe shortcomings and ethical difficulties despite them both having made great progress. Quality of data, inclusivity and explainability are all serious issues. AI models perform only as well as the data they are informed with, and such data is in complete, biased, or context-specific in both healthcare and poultry science. A machine learning model (of cybersecurity) based on data collected

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in wealthy hospitals is not likely to perform in rural clinics. Again, similarly, poultry data of large scale farms do not necessarily represent those of the smallholders. These prejudices threaten to further the existence of inequalities instead of relieving them.

Ethical issues also appear large In the healthcare industry, the privacy of patient data is of the utmost importance, and regulations like HIPAA and GDPR add extra regulations to the sphere. The training of algorithms with sensitive medical data begs the questions of consent and ownership and the element of trust. In poultry farming, questions of ethics change to matters of ownership of data by farmers, to animal welfare, equity in access of digital information. Unless closely managed, AI will perpetuate power disparities, whereby the concentrations of technological advantage go to rich hospitals or faming facilities leaving the dispossessed behind.

The other typical restriction is excessive reliance on AI. Although AI and, specifically, ChatGPT promise to make decision-making better, it does not mean it is without flaws. Such issues as hallucinations in ChatGPT responses or automatically reported false positives in cybersecurity threat detection can misguide the user in case they are taken at face value. In healthcare, this may compromise patient safety; in poultry science, it may result in bad farm management or the occurrence of losses. Human expertise should be at the forefront with Artificial intelligence acting as an assistant and not a tool. This demonstrates why explainable AI (XAI) is important, as users can be sure about why they see what they see, they can trust and hold people accountable.

The future of AI in both fields of healthcare cybersecurity and poultry science is marked by a number of aspects including specialization, transparency, integration, resilience, and inclusivity. Domain-specific models that have been fine-tuned are necessary in order to guarantee correctness and reliability. Ability to explain must gain pre-eminence such that the outputs would be interpretable and in action. Connectivity with Internet of Things (IoT) provides potentials on real-time overviews and fast responsiveness, both in hospitals that monitor the network traffic, or poultry farms to monitor the environment of flocks. Meanwhile, AI systems have to be ensured against adversarial manipulation themselves, as they have been coming to constitute the critical infrastructure.

All-important is that fairness of access has to be kept at the forefront of AI development. Unless concerted efforts are made towards closing the digital divide, AI threatens to increase disparities between the large institutions and small institutions, industrial farmers and small farmers and developed and developing countries. The affordability of AI tools, multilingual platforms, and open datasets may allow greater access to the ecosystem of innovation and make it available to those who can benefit the most.

The most important lesson one can learn by looking at these two disciplines simultaneously may be

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cross-disciplinary collaboration. The domains of healthcare cybersecurity and poultry science are unrelated to one another, but are based on some similar challenges: there is a large amount of data to process, risk has to be forecasted under uncertainty, and systems need to be resilient to systemic threats. Experience derived in one sphere can be used in the other. Take the predictive modelling approaches used to counter disease outbreaks in poultry, these approaches could be translated to counter cyber-attacks in healthcare. On the other hand, the rigid ethical principles, which govern the use of patient data in the medical field, might act as a model of better regulation of animal welfare and data ownership in the agricultural sector. This cross-fertilization not only enhances each discipline, but also builds towards a greater One Health approach recognizing the interconnected nature of the health of humans, animals and the environment.

AI and ChatGPT can be a game-changing combination of technology and knowledge to change healthcare cybersecurity and the field of poultry science. Their use cases are based on potential security level, efficiency, and accessibility but require close monitoring because of the shortcomings attached to the quality of data, bias, explain ability, privacy, and equity. The future of these technologies is subject to our responsibility of deployment with sensitivity and inclusivity. Through the promotion of transparency, resilience, and interdisciplinary collaboration, the stakeholders have an opportunity to make sure that AI evolves as a means of empowerment, not exclusion.

Whether it is true of the story of AI in cybersecurity of the healthcare industry or in poultry science, it is not entirely a technology-based story but that of how humanity elects to utilize technology. When supported by ethical values, inclusiveness, and creativity, AI can help to protect vulnerable digital networks and provide efficient animal production systems and contribute to world health and food security. The ability to find cross-disciplinary synergies between these two worlds shows that the most effective technological advancements can be witnessed when they can break down traditional barriers between fields, and create bridges between them.

REFERENCES

[1]. Bacha A. Unveiling Frontiers: Hybrid Algorithmic Frameworks for AI-Driven Mental Health Interventions. AlgoVista: Journal of AI and Computer Science. 2025;2(1):1-8.

[2]. Darwish, D. (2024). Emerging Trends in Cloud Computing Analytics, Scalability, and Service Models. Hershey, PA: CRC Press. doi: 10.4018/979-8-3693-0900-1

[3]. Shehzad K. Predictive AI Models for Food Spoilage and Shelf-Life Estimation. Global Trends in Science and Technology. 2025 Feb 17;1(1):75-94.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[4]. Zeb S, Nizamullah FN, Abbasi N, Qayyum MU. Transforming Healthcare: Artificial Intelligence's Place in Contemporary Medicine. BULLET: Jurnal Multidisiplin Ilmu. 2024;3(4):592385.

[5]. Chakriswaran, P., Vincent, D.R., Srinivasan, K., Sharma, V., Chang, C.Y., Reina, D.G.: Emotion AI-driven sentiment analysis: a survey, future research directions, and open issues. Appl. Sci. 9(24), 5462 (2019)

[6]. Neoaz N. Role of Artificial Intelligence in Enhancing Information Assurance. BULLET: Jurnal Multidisiplin Ilmu. 2024;3(5):749-58.

[7]. Babu, N.V., Kanaga, E.G.M.: Sentiment analysis in social media data for depression detection using artificial intelligence: a review. SN Comput. Sci. 3, 1–20 (2022)

[8]. Bacha A, Zainab H. AI for Remote Patient Monitoring: Enabling Continuous Healthcare outside the Hospital. Global Journal of Computer Sciences and Artificial Intelligence. 2025 Jan 23;1(1):1-6.

[9]. Mukhamadiyev, A., Khujayarov, I., Djuraev, O., Cho, J.: Automatic speech recognition method based on deep learning approaches for Uzbek language. Sensors 22(10), 3683 (2022)

[10]. Kabeer MM. Artificial Intelligence in Modern Manufacturing: Opportunities and Barriers. Global Trends in Science and Technology. 2025 Jul 16;1(3):83-100.

[11]. Johri, P., Khatri, S.K., Al-Taani, A.T., Sabharwal, M., Suvanov, S., Kumar, A.: Natural language processing: history, evolution, application, and future work. In: Proceedings of 3rd international conference on computing informatics and networks: ICCIN 2020, pp. 365–375. Springer Singapore (2021)

[12]. Efanov, D., Aleksandrov, P., Karapetyants, N.: The BiLSTM-based synthesized speech recognition. Proc. Comput. Sci. 213, 415–421 (2022)

[13]. Neoaz N, Husnain A. Deciphering the AI Healthcare Evolution: Opportunities, Risks, and the Path Forward. Global Trends in Science and Technology. 2025 Mar 30;1(1):121-42.

[14]. Bacha A, Shah HH. AI-Enhanced Liquid Biopsy: Advancements in Early Detection and Monitoring of Cancer through Blood-based Markers. Global Journal of Universal Studies.;1(2):68-86.

[15]. Nizamullah F, Fahad M, Abbasi N, Qayyum MU, Zeb S. Ethical and legal challenges in AI-driven healthcare: patient privacy, data security, legal framework, and compliance. Int. J. Innov. Res. Sci. Eng. Technol. 2024;13:15216-23.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[16]. Creese, S., Dutton, W. H., and Esteve-González, P. (2021). The social and cultural shaping of cybersecurity capacity building: a comparative study of nations and regions. Pers. Ubiquitous Comput. 25, 941–955. doi: 10.1007/s00779-021-01569-6

[17]. Asif SM. Analysis of Key Parameters and Mesh Optimization in Computational Fluid Dynamics Using Open FOAM. BULLET: Jurnal Multidisiplin Ilmu.;1(2):592455.

[18]. Asif SM. Design and Control of A Ball and Beam Balancing Mechanism Using MATLAB/Simulink. Global Journal of Multidisciplinary Sciences and Arts.;1(2):1-34.

[19]. Asif SM. Investigation of Elementary Vibrations: Derivation, Experimental Analysis, and Key Findings. BULLET: Jurnal Multidisiplin Ilmu.;3(6):744-53.

[20]. Asif SM. Mitigation of High BOD Levels in Sewage Treatment Plants Using Outfall Storage Solutions. International Journal of Social, Humanities and Life Sciences.;1(1):48-61.

[21]. Asif SM. Simulation of A Two Link Planar Anthropomorphic Manipulator. BULLET: Jurnal Multidisiplin Ilmu.;1(03):539-52.

[22]. Drape, T., Magerkorth, N., Sen, A., Simpson, J., Seibel, M., Murch, R. S., and Duncan, S. E. (2021). Assessing the role of cyberbiosecurity in agriculture: a case study. Front. Bioeng. Biotechnol. 9:737927. doi: 10.3389/fbioe.2021.737927

[23]. Zeb S, Lodhi SK. AI for predictive maintenance: Reducing downtime and enhancing efficiency. Enrichment: Journal of Multidisciplinary Research and Development. 2025 May 13;3(1):135-50.

[24]. Eastwood, C., Klerkx, L., Ayre, M. and Dela Rue, B., (2019). Managing socio-ethical challenges in the development of smart farming: from a fragmented to a comprehensive approach for responsible research and innovation. J. Agric. Environ. Ethics 32, 741–768. doi: 10.1007/s10806-017-9704-5

[25]. Javeedullah M. Big Data and Health Informatics: Managing Privacy, Accuracy, and Scalability. Global Trends in Science and Technology. 2025 Jul 3;1(3):29-47.

[26]. Zeb S, Lodhi SK. AI and Cybersecurity in Smart Manufacturing: Protecting Industrial Systems. American Journal of Artificial Intelligence and Computing. 2025 Apr 7;1(1):1-23.

[27]. Javeedullah M. Integrating Health Informatics Into Modern Healthcare Systems: A Comprehensive Review. Global Journal of Universal Studies.;2(1):1-21.

[28]. Shehzad K, Munir A, Ali U. Modern Trends in Food Production: the Role of AI in Smart Food Factories. Global Journal of Emerging AI and Computing.;1(2):1-30.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[29]. Samad A, Jamal A. Transformative Applications of ChatGPT: A Comprehensive Review of Its Impact across Industries. Global Journal of Multidisciplinary Sciences and Arts. 2024;1(1):26-48.

[30]. Patel H, Samad A, Hamza M, Muazzam A, Harahap MK. Role of artificial intelligence in livestock and poultry farming. Sinkron: jurnal dan penelitian teknik informatika. 2022 Oct 7; 6(4):2425-9.

[31]. Samad A, Jamal A. Alternative Meats–Revolutionizing the Future of Sustainable Food Systems. Global Journal of Agricultural and Biological Sciences. 2024 Nov 20;1(1):1-4.

[32]. Bacha A, Sherani AM. AI in Predictive Healthcare Analytics: Forecasting Disease Outbreaks and Patient Outcomes. Global Trends in Science and Technology. 2025 Jan 24; 1(1):1-4.

[33]. T. H. H. Aldhyani, and H. Alkahtani, "Cyber Security for Detecting Distributed Denial of Service Attacks in Agriculture 4.0: Deep Learning Model," Mathematics, vol. 11, no. 1, pp. 1–19, 2023. https://doi.org/10.3390/math11010233

[34]. Shah HH, Bacha A. Leveraging AI and Machine Learning to Predict and Prevent Sudden Cardiac Arrest in High-Risk Populations. Global Journal of Universal Studies.;1(2):87-107.

[35]. Bacha A, Sherani AM. AI in Predictive Healthcare Analytics: Forecasting Disease Outbreaks and Patient Outcomes. Global Trends in Science and Technology. 2025 Jan 24; 1(1):1-4.

[36]. Neoaz N, Shah HH, Zainab H. AI in Personalized Medicine: Transforming Treatment Plans through Precision Health. Global Journal of Emerging AI and Computing. 2025 Jan 23; 1(1):34-50.

[37]. Shehzad K, Munir A, Ali U. AI-Powered Food Contaminant Detection: A Review of Machine Learning Approaches. Global Journal of Computer Sciences and Artificial Intelligence.;1(2):1-22.s

[38]. Shihab SR, Sultana N, Samad A. Revisiting the use of ChatGPT in business and educational fields: Possibilities and challenges. BULLET: Jurnal Multidisiplin Ilmu. 2023;2(3):534-45.

[39]. Bissadu, K., Hossain, G., and Vajpayee, P., (2024). "Agriculture 5.0 cybersecurity: monitoring agricultural cyber threats with digital twin technology," in 2024 IEEE World AI IoT Congress (AIIoT) (IEEE), 252–258. doi: 10.1109/AIIoT61789.2024.10579017

[40]. Brassesco, M. E., Pintado, M., and Coscueta, E. R. (2022). Food system resilience thinking: from digital to integral. J. Sci. Food Agric. 102, 887–891. doi: 10.1002/jsfa.11533

[41]. Chantzis, F., Stais, I., Calderon, P., Deirmentzoglou, E., and Woods, B. (2021). Practical IoT Hacking: The Definitive Guide to Attacking the Internet of Things. Seattle, WA: No Starch Press.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[42]. Cinar, B., and Thomas, R. K. (2023). Cyber-biosecurity; a paradigm shift in the field of life sciences and agriculture sector. Asian J. Biotechnol. Genetic Eng. 6, 58–75. Available online at: https://journalajbge.com/index.php/AJBGE/article/view/100

[43]. Connolly, A. Y., and Borrion, H. (2022). Reducing ransomware crime: analysis of victims' payment decisions. Comput. Secur. 119:102760. doi: 10.1016/j.cose.2022.102760

[44]. Samad A. Use of poultry manure as an alternative of soybean in fish feed. Biological Times. 2023;2(3):1-2.

[45]. Nguyen J, Pepping CA. The application of ChatGPT in healthcare progress notes: a commentary from a clinical and research perspective. Clin Transl Med. (2023) 13:e1324. doi: 10.1002/ctm2.1324

[46]. Shehzad K, Ali U, Munir A. Computer vision for food quality assessment: Advances and challenges. Available at SSRN 5196776. 2025.

[47]. Singh A. Evolution of Computer Science: A Historical and Technological Overview. American Journal of Artificial Intelligence and Computing. 2025 Jul 23;1(2):62-86.

[48]. Kabeer MM. Utilizing Machine Learning for Continuous Process Improvement in Lean Six Sigma. Global Trends in Science and Technology. 2025 May 7;1(2):49-63.

[49]. Javeedullah M. Future of Health Informatics: Bridging Technology and Healthcare. Global Trends in Science and Technology. 2025 Apr 4;1(1):143-59.

[50]. Abid N, Neoaz N, Amin MH. AI-Driven Approaches to Overcoming Tumor Heterogeneity in Breast Cancer: Modelling Resistance and Therapy Outcomes. Global Journal of Universal Studies.;1(2):591050.

[51]. Suh PS, Shim WH, Suh CH, et al.: Comparing diagnostic accuracy of radiologists versus GPT-4V and Gemini Pro Vision using image inputs from diagnosis please cases. Radiology. 2024, 312:e240273. 10.1148/radiol.240273

[52]. Neoaz N. Harnessing Artificial Intelligence for Cybersecurity in Healthcare and Food Processing: A Review of Emerging Trends and the Role of Generative Models like ChatGPT. Global Trends in Science and Technology. 2025 Jul 24;1(3):144-62.

[53]. Abbasi N, Nizamullah FN, Zeb S. Ai in healthcare: Using cutting-edge technologies to revolutionize vaccine development and distribution. JURIHUM: Jurnal Inovasi dan Humaniora. 2023 Jun 14;1(1):17-29.

[54]. M. Dayoub, S. Shnaigat, R. A. Tarawneh, A. Al-Yacoub, F. Al-Barakeh, and K. Al-Najjar, "Enhancing Animal Production through Smart Agriculture: Possibilities, Hurdles,

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

Resolutions, and Advantages," Ruminants, vol. 4, no. 1, pp. 22–46, 2024. https://doi.org/10.3390/ruminants4010003

[55]. Dave P, Kariya S, Dudhat K. Tailoring and optimization of nifedipine controlled release organogel via quality by design approach. Journal of Pharmaceutical Innovation. 2024 Aug; 19(4):47.

[56]. Dave P, Jani R, Chakraborthy GS, Jani KJ, Upadhye V, Kahrizi D, Mir MA, Siddiqui S, Saeed M, Upadhyay TK. Phytosomes: A promising delivery system for anticancer agents by using phytochemicals in cancer therapy. Cellular and Molecular Biology. 2023 Dec 20; 69(14):1-8.

[57]. Dave P, Raval B, Pujara N, Gohil T. FORMULATION AND EVALUATION OF ORAL SUPERSATURABLE SELF MICRO EMULSIFYING DRUG DELIVERY SYSTEM ITRACONAZOLE.

[58]. Dave P, Patel D, Raval B. An oral organogel-novel approach for controlled drug delivery system. International Journal of Drug Delivery Technology. 2022; 12(1):437-45.

[59]. Dave P, Raval B, Dudhat K. Cubosomes: Next-Generation Nanocarriers for Versatile Drug Delivery System for Cancer Therapy and Other Applications. Biomedical Materials & Devices. 2025 Jun 5:1-32

[60]. . B. Fulkar, S. Mendhe, and P. G. Patil, "Artificial Intelligence Cultivation: Transforming agriculture for a smart and Sustainable future," 2024 2nd International Conference on Intelligent Data Communication Technologies and Internet of Things (IDCIoT), Bengaluru, India, 04-06 January 2024, pp. 960–964. https://doi.org/10.1109/idciot59759.2024.10467857

[61]. Javeedullah M. Using Health Informatics to Streamline Healthcare Operations. American Journal of Artificial Intelligence and Computing. 2025 Apr 7;1(1):24-44.

[62]. Samad A. ANTIBIOTICS RESISTANCE IN POULTRY AND ITS SOLUTION. Devotion: Journal of Research & Community Service. 2022 Aug 1;3(10).

[63]. Javeedullah M. Security and Privacy in Health Informatics: Safeguarding Patient Data in A Digital World. AlgoVista: Journal of AI and Computer Science.;2(3):52-68.

[64]. I. Guevara, S. Ryan, A. Singh, C. Brandon, and T. Margaria, "Edge IoT Prototyping Using Model-Driven Representations: A Use Case for Smart Agriculture," Sensors, vol. 24, no. 2, pp. 1–20, 2024. https://doi.org/10.3390/s24020495

[65]. Bacha A. Healing with Algorithms: The Future of AI-Driven Diagnostics and Treatment. American Journal of Artificial Intelligence and Computing. 2025 May 9;1(1):103-18.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[66]. Bacha A, Shah HH, Abid N. The Role of Artificial Intelligence in Early Disease Detection: Current Applications and Future Prospects. Global Journal of Emerging AI and Computing. 2025 Jan 20;1(1):1-4.

[67]. Khan M, Sherani AM, Bacha A. The Neurological Nexus: Exploring EEG, Facial Recognition, and Graph Algorithms in Mental Health AI. Global Insights in Artificial Intelligence and Computing. 2025 Jan 26;1(1):47-56.

[68]. E. K. Gyamfi, Z. ElSayed, J. Kropczynski, M. A. Yakubu, and N. Elsayed, "Agricultural 4.0 Leveraging on Technological Solutions: Study for Smart Farming Sector," arXiv (Cornell University), pp. 1–9, 2024. https://doi.org/10.48550/arxiv.2401.00814

[69]. S. Sharma, M. Tomar, and R. Tyagi, "Artificial Intelligence and Vedic Scripture in Digital Agriculture for Global Economy," 2024 International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (IITCEE), Bangalore, India, 24-25 January 2024, pp. 1–6. https://doi.org/10.1109/iitcee59897.2024.10467916

[70]. Javeedullah M. Interoperability Solutions for Efficient Health Informatics Systems. Global Trends in Science and Technology. 2025 Apr 22;1(1):176-94.

[71]. H. T. Bui, H. Aboutorab, A. Mahboubi, Y. Gao, N. H. Sultan, A. Chauhan, M. Z. Parvez, Bewong, R. Islam, Z. Islam, S. Camtepe, P. Gauravaram, D. M. Singh, A. Babar, and S. Yan, "Agriculture 4.0 and Beyond: Evaluating Cyber Threat Intelligence Sources and Techniques in Smart Farming Ecosystems," Computers and Security, vol. 140, pp. 1–32, 2024. https://doi.org/10.1016/j.cose.2024.103754

[72]. Bacha A. Artificial Intelligence in Healthcare, Cybersecurity, Machine Learning, and Food Processing: A Cross-Industry Review. American Journal of Artificial Intelligence and Computing. 2025 Jul 24;1(2):87-104.

[73]. Abbasi N, Nizamullah FN, Zeb S. AI in healthcare: integrating advanced technologies with traditional practices for enhanced patient care. BULLET: Jurnal Multidisiplin Ilmu. 2023 Jun 13;2(3):546-6.

[74]. Ahmad B, Samad A, Hamza M. Antibiotic Resistance in Poultry and farm Animals and its Solution. Biological Times. 2023;2(3):3-4.

[75]. Shehzad K, Ali U, Munir A. Role of AI in Food Production and Preservation. Global Insights in Artificial Intelligence and Computing. 2025 Feb 19;1(2):1-7.

[76]. Neoaz N. Big Data Analytics Study the implications of big data analytics on decision-making processes in organizations. Author Nahid Neoaz. 2025 Jan 20.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[77]. Paslı S, Şahin AS, Beşer MF, Topçuoğlu H, Yadigaroğlu M, İmamoğlu M. Assessing the precision of artificial intelligence in emergency department triage decisions: insights from a study with ChatGPT. Am J Emerg Med. (2024) 78:170–5. doi: 10.1016/j. ajem.2024.01.037

[78]. Rule A, Bedrick S, Chiang MF, Hribar MR. Length and redundancy of outpatient progress notes across a decade at an academic medical center. JAMA Netw Open. (2021) 4:e2115334. doi: 10.1001/jamanetworkopen.2021.15334

[79]. Tierney AA, Gayre G, Hoberman B, Mattern B, Ballesca M, Kipnis P, et al. Ambient artificial intelligence scribes to alleviate the burden of clinical documentation. NEJM Catal Innov Care Deliv. (2024) 5:CAT.23.0404. doi: 10.1056/CAT.23.0404

[80]. Neoaz N. Human Factors in Information Assurance: A Review of Behavioral and Cultural Aspects. International Journal of Multidisciplinary Sciences and Arts. 2024;3(4):235-42.

[81]. Guida SJ, Bazzle L. Rebound hyperkalemia in a dog with albuterol toxicosis after cessation of potassium supplementation. J Vet Emerg Crit Care. (2023) 33:715–21. doi: 10.1111/vec.13352

[82]. Kanjee Z, Crowe B, Rodman A. Accuracy of a generative artificial intelligence model in a complex diagnostic challenge. JAMA. (2023) 330:78–80. doi: 10.1001/ jama.2023.8288 51. peakcooper. GPT4 saved my dog's life. (2023). Available at: https://twitter.com/peakcooper/status/1639716822680236032?s=20

[83]. Souza GV, Hespanha ACV, Paz BF, Sá MAR, Carneiro RK, Guaita SAM, et al. Impact of the internet on veterinary surgery. Vet Anim Sci. (2020) 11:100161–1. doi: 10.1016/j.vas.2020.100161

[84]. Neoaz N, Shah HH, Zainab H. AI in Personalized Medicine: Transforming Treatment Plans through Precision Health. Global Journal of Emerging AI and Computing. 2025 Jan 23;1(1):34-50.

[85]. Fijačko N, Prosen G, Abella BS, Metličar Š, Štiglic G. Can novel multimodal chatbots such as Bing chat Enterprise, ChatGPT-4 pro, and Google bard correctly interpret electrocardiogram images? Resuscitation. (2023) 193:110009. doi: 10.1016/j. resuscitation.2023.110009

[86]. Yao X, Rushlow DR, Inselman JW, McCoy RG, Thacher TD, Behnken EM, et al. Artificial intelligence–enabled electrocardiograms for identification of patients with low ejection fraction: a pragmatic, randomized clinical trial. Nat Med. (2021) 27:815–9. doi: 10.1038/s41591-021-01335-4

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[87]. Abbasi N, Nizamullah FN, Zeb S, Fahad M, Qayyum MU. Machine learning models for predicting susceptibility to infectious diseases based on microbiome profiles. Journal of Knowledge Learning and Science Technology ISSN: 2959-6386 (online). 2024 Aug 25; 3(4):35-47.

[88]. Neoaz N, Amin MH. Advanced AI Paradigms in Mental Health: An In-depth Exploration of Detection, Therapy, and Computational Efficacy. Global Insights in Artificial Intelligence and Computing. 2025 Jan 25;1(1):40-6.

[89]. Cellina M, Cè M, Irmici G, et al.: Artificial intelligence in emergency radiology: where are we going? . Diagnostics (Basel). 2022, 12:10.3390/diagnostics12123223

[90]. Lodhi SK, Zeb S. Ai-Driven Robotics and Automation: The Evolution of Human-Machine Collaboration. Journal of World Science. 2025 May 13;4(4):422-37.

[91]. Oura T, Tatekawa H, Horiuchi D, et al.: Diagnostic accuracy of vision-language models on Japanese diagnostic radiology, nuclear medicine, and interventional radiology specialty board examinations. Jpn J Radiol. 2024, 10.1007/s11604-024-01633-0

[92]. Hamza M, Samad A, Ahmer A, Tariq S, Muazzam A, Ali HU, Khera AR, Hussain K, Abbas A, Raza MA, Waqas MU. Infectious bursal disease in poultry with an improved diagnostic method; brief overview. J Nat Appl Sci Pak. 2022;4:912-25.

[93]. Hirano Y, Hanaoka S, Nakao T, et al.: GPT-4 Turbo with Vision fails to outperform text-only GPT-4 Turbo in the Japan Diagnostic Radiology Board Examination. Jpn J Radiol. 2024, 42:918-26. 10.1007/s11604-024- 01561-z

[94]. Neoaz N, Amin MH. Advanced AI Paradigms in Mental Health: An In-depth Exploration of Detection, Therapy, and Computational Efficacy. Global Insights in Artificial Intelligence and Computing. 2025 Jan 25;1(1):40-6.

[95]. Jin Q, Chen F, Zhou Y, et al.: Hidden flaws behind expert-level accuracy of multimodal GPT-4 vision in medicine. NPJ Digit Med. 2024, 7:190. 10.1038/s41746-024-01185-7 17. How good is Bing (GPT-4) multimodality?. (2023). Accessed: July 15, 2024: https://blog.roboflow.com/howgood-is-bing-gpt-4-multimodality/.

[96]. Kabeer MM. Leveraging AI for Process Optimization: The Future of Quality Assurance in Lean Six Sigma. American Journal of Artificial Intelligence and Computing. 2025 May 7;1(1):87-103.

[97]. Javeedullah M. Role of Health Informatics in Public Health Surveillance and Response. American Journal of Artificial Intelligence and Computing. 2025 Apr 21;1(1):70-86.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.244-272

[98]. Ghets B. After being one of the strongest warnings about it, Gates alleviates the public's fears about AI [Internet]. 2023 Jul 14 [cited 2023 Dec 27]. Available from: https://www.aljazeera.net/tech/2023/7/14/3

[99]. Zhang, C., Bengio, S., Hardt, M., Recht, B., & Vinyals, O. (2017). Understanding deep learning requires rethinking generalization. In Proceedings of the 5th International Conference on Learning Representations (ICLR). Paper

[100]. Hu, K., Li, X.: The creativity and limitations of AI neural machine translation: a corpus-based study of DeepL's English-to-Chinese translation of Shakespeare's plays. Babel (2023) 20. Wang, C., Cho, K., Gu, J.: Neural Machine translation with byte-level subwords. Proc. AAAI Conf. Artif. Intell. 34(05), 9154–9160 (2020). https://doi.org/10.1609/aaai.v34i05.6451

[101]. Wang, J., Yu, L.C., Lai, K.R., Zhang, X.: Tree-structured regional CNN-LSTM model for dimensional sentiment analysis. IEEE/ACM Trans. Audio Speech Lang. Process. 28, 581–591 (2019)

[102]. Kabeer MM. Next-Generation Food Manufacturing: AI as a Catalyst for Productivity and Quality Enhancement. Global Food Research. 2025 Jul 15;1(1):1-8.

[103]. Darwish, K., Habash, N., Abbas, M., Al-Khalifa, H., Al-Natsheh, H.T., Bouamor, H., Mubarak, H., et al.: A panoramic survey of natural language processing in the Arab world. Commun. ACM 64(4), 72–81 (2021)

[104]. Riva GM, Accoto C. Inside (Out) the Black Box. Legal and Philosophical Speculations on the Implications of "Sentient" Artificial Intelligence (s). InSocio-economic Impact of Artificial Intelligence: A European Management Perspective 2025 Jan 30 (pp. 23-58). Cham: Springer Nature Switzerland.