Global Trends in Science and Technology

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

AI and ChatGPT for Modern Challenges: A Review in Healthcare, Cybersecurity, Computer Science, Poultry, and Food Science

Mohammad Ali[1*]

[1]Independent Researcher Iraq

[1]m.ali.m2000m@gmail.com

open access

Corresponding Author
Mohammad Ali
m.ali.m2000m@gmail.com

Article History:
Submitted: 02-07-2025
Accepted: 10-08-2025
Published: 16-08-2025

Keywords

Artificial Intelligence, ChatGPT, Healthcare, Cybersecurity, Computer Science, Poultry Science, Food Science, Predictive Analytics.

Global Trends in Science and Technology is licensed under a Creative Commons Attribution-Noncommercial 4.0 International (CC BY-NC 4.0).

ABSTRACT

AI and generative models like ChatGPT are quickly changing various fields and industries, such as healthcare, cybersecurity, computer science, poultry science and food systems. This survey looks at the various areas of AI application, advantages, and limitations of integrating AI in these areas. In medical care, AI can improve diagnostics, individual care and tracking, and ChatGPT implements patient communications and clinical decision-making. Applied intelligence in cybersecurity enhances threat prediction, prediction, and auto-response. In computer science, in addition to being used by ChatGPT in coding and solving problems, AI is used to develop algorithms, analyze data, and automate software. AI is used to maximize disease control, feeding efficiency, supply chain, and innovation in poultry science and food sciences. Nevertheless, issues of ethical considerations, data quality, privacy, and transparency still exist, despite its potential. The vision of the future asserts that modern AI will continue to enhance efficiency, sustainability, and innovation in multiple fields and particularly in the responsible and equitable use of AI.

INTRODUCTION

Artificial intelligence (AI) has become one of the technologies that have transformed the 21 st century as it has played a transformative role in shaping industries, research, and lifestyles. Artificial intelligence is defined as development of computer systems that can perform the duties previously requiring human intellect, which include learning, reasoning, problem solving, decision making and understanding language [1]. The last ten years have been characterised by major breakthroughs in AI due to the presence of big data and the increase in computational capabilities combined with the new

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

discoveries of machine and deep learning. Out of these, generative AI such as ChatGPT has gained immensely widespread secondary attention due to its capabilities of natural language processing, producing humanized responses, and supplementing knowledge in different domains [2].

The increased use of AI in the healthcare sphere has transformed the diagnostic process, patient treatment, and management of the diseases. Machine learning algorithms have the potential to tackle very large datasets of medical data such as medical imaging, electronic health records, and high-throughput genomics to inform tumor outcome prediction, treatments to patients and clinical decision-making [3]. Healthcare ChatGPT and other natural language processing models can use communication between healthcare providers and patients, make administrative processes more efficient, and provide decision support, which makes healthcare increasingly efficient and accessible. This is leading the healthcare sector to a future of precision medicine and data driven care: integrating AI analytical precision with human knowledge [4].

Simultaneously, AI has been a key issue in cybersecurity. With the increasing sophistication of the digital threats, AI system solutions can provide automation of possible threats identification, real-time observation, and prediction analysis to safeguard the networks, systems, and valuable information. With the help of AI models, one can detect anomalous behavior, malware, and predict any upcoming cyber-attacks, which decreases response time and improves the security infrastructure [5]. ChatGPT is able to complement cybersecurity by offering cybersecurity training simulations, produce security reports, and inform users on the best practices, consolidating organizational and individual resilience to cyber threats [6].

Artificial intelligence has been critical in computer science as well, catalyzing advancements in the fields of algorithm design, software development, data processing and human-computer interface. Massive language models such as ChatGPT are an illustration of the combination of AI and computer science that can create opportunities in numerous applications, such as code generation and problem-solving support. With development of computing workflows that incorporate AI, researchers and practitioners can imminently increase the development cycle, enhance the efficiency of systems, and innovate potential solutions to solve a complex problem [7].

Outside the field of technology and healthcare, AI has been having considerable effects on agricultural and food systems. AI application in poultry science instead contributes to the monitoring of diseases, the optimization of nutrition, and production efficiency, both to animal welfare and to farming efficiency. On the same note, AI guarantees the quality control, predictive supply chain management, and innovation of the products development in food science [8]. Knowledge sharing on these areas can be supported by ChatGPT as it can provide information, advice, and on-demand support to

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

researchers, farmers, and food industry players.

Of the many fields affected by the paradigm shift created by AI and ChatGPT, is healthcare, cybersecurity, computer, science, poultry science, and food systems. Their combination is sure to result in better efficiency, decision-making capability, and creative ways of addressing contemporary challenges. This review will seek to bring forward a summary of these applications with their present developments, issues, and the future outlook of using AI and ChatGPT in various fields [9].

ROLE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

Humanity has undergone radical change in the healthcare industry due to Artificial Intelligence, as it has changed the manner medical experts diagnose, treat, and manage illnesses. Through the utilization of large data sets, advanced algorithms, and processing power, AI offers predictive, personalized, and efficient healthcare outcomes that have been out of reach in the past. Its usage is applied to clinical decision support, medical imaging, patient monitoring, drug discovery, administrative optimization, and this is why it becomes one of the most promising technologies of modern medicine [10].

Diagnostics and disease forecasting is one of the most influential AI-related applications in the healthcare sector. The machine learning algorithms could be applied to the analysis of multifaceted information, such as electronic health records (EHRs), sequences of genomics, laboratory findings, and medical imagery. As an example, deep learning models have been able to contribute outstanding accuracy in identifying conditions like cancer, cardiovascular diseases, and neurological disorders based on images obtained through imaging scans, both at the same level or outperforming human experts in most cases [11]. In addition to observing such patterns that may or may not be directly recognizable to the clinicians, AI has the capabilities of early detections, which can be used to intervene before diseases reach terminal stages.

Our research is very broad-ranged, spanning many areas of engineering and science, ranging through robotics, fluid mechanics, control systems, vibration and environmental engineering. Planar manipulators and ball-and-beam balancing mechanisms and the computer modelling of these systems in the field of robotics show how through computational modelling and sophisticated control algorithms one can approach the problem of stabilizing dynamical systems [12]. Artificial Intelligence (AI) can further reinforce these realms by offering adaptive control, learning-based optimization and power of prediction which are outside the realm of traditional techniques. The use of AI in the domain of fluid dynamics is becoming very significant, as researchers have employed it in facilitating better predictive modeling, streamlining mesh optimization, and minimizing the cost of simulation of large scale events, making both efficiency and accuracy considerable [13].

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Global Trends in Science and Technology
ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197



Figure: 1 showing AI in healthcare

Articles on vibrations and experimentation demonstrate how AI capabilities can help determine system behavior and faults with anomaly detection and pattern recognition algorithms can be used to assist in the automatic interpretation of complex datasets implying faster detection [14]. In terms of use, environmental engineering also finds the use of AI highly beneficial, especially when dealing with issues like having high BOD levels in sewage treatment plants, where it can effectively be utilized by utilizing AI through predictive monitoring, real-time processes of these plants and even accomplishing adaptive strategies in terms of treatment [15]. All of these together demonstrate the transformative power of AI in our contemporary sphere of science and engineering not just because it will be able to enhance the level of accuracy and efficiency but also due to the fact that it will allow us to find creative ways of solving complex problems that were once a challenge due to the traditional ways of doing it [16].

Patient monitoring and remote healthcare has also been transformed through AI. Vital signs including heart rate, blood pressure, glucose levels, and oxygen saturation can be continually monitored by wearable devices and sensors that work over the internet (IoT). AI algorithms will assess these data streams in real-time in order to warn healthcare providers of unusual values that could be indicative

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

of a worsening condition. This will be especially useful in treatment of chronic diseases where early action will help to avoid hospitalization and assist in leading better lives [17].

Overall, AI has changed healthcare in its core aspects that involve highly accurate diagnostics, personalized treatment, real-time status monitoring, and maximum efficiency of clinical decision-making. These applications of ChatGPT and the other AI tools are continually growing, providing new ways of solving contemporary issues regarding healthcare [18]. With the change in the technology, the potential of AI to transform patient outcomes, lower costs, and transform healthcare delivery is enormous to bring the more predictive, preventive, and personalized healthcare future [19].

Artificial Intelligence in cybersecurity

The digital era has made cybersecurity one of the most significant areas to organizations, governments, and individuals among others. Due to the high rate of growth in internet based services, cloud computing and used of connected devices, cyber threats have not only increased in size, but also complexity. The conventional approaches to security namely the signature-based antivirus applications or the firewalls which are static are becoming insufficient in relation to tackling these dynamic threats [20]. Artificial Intelligence (AI) has become an effective technology in the cybersecurity industry that offers an intelligent threat detection system coupled by real-time response and predictive capabilities, which is known to offer superior cybersecurity measures [21].

Threat detection and identification of anomalies is one of the main uses of AI in cybersecurity. Machine learning algorithms have the ability to view large amounts of network traffic, user activity, and system logs to find odd patterns that can be analyzed as evidence of a cyberattack. As opposed to the traditional approach, AI is not based on the existence of fixed signatures or rules. Rather, it will continuously learn more information and thus be able to identify cognizance of threat that should not happen, such as zero-day attacks, malware, and ransom ware [22]. AI helps increase the speed and accuracy of detecting the threats by identifying minute anomalies that a human analyst could easily miss.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Global Trends in Science and Technology

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

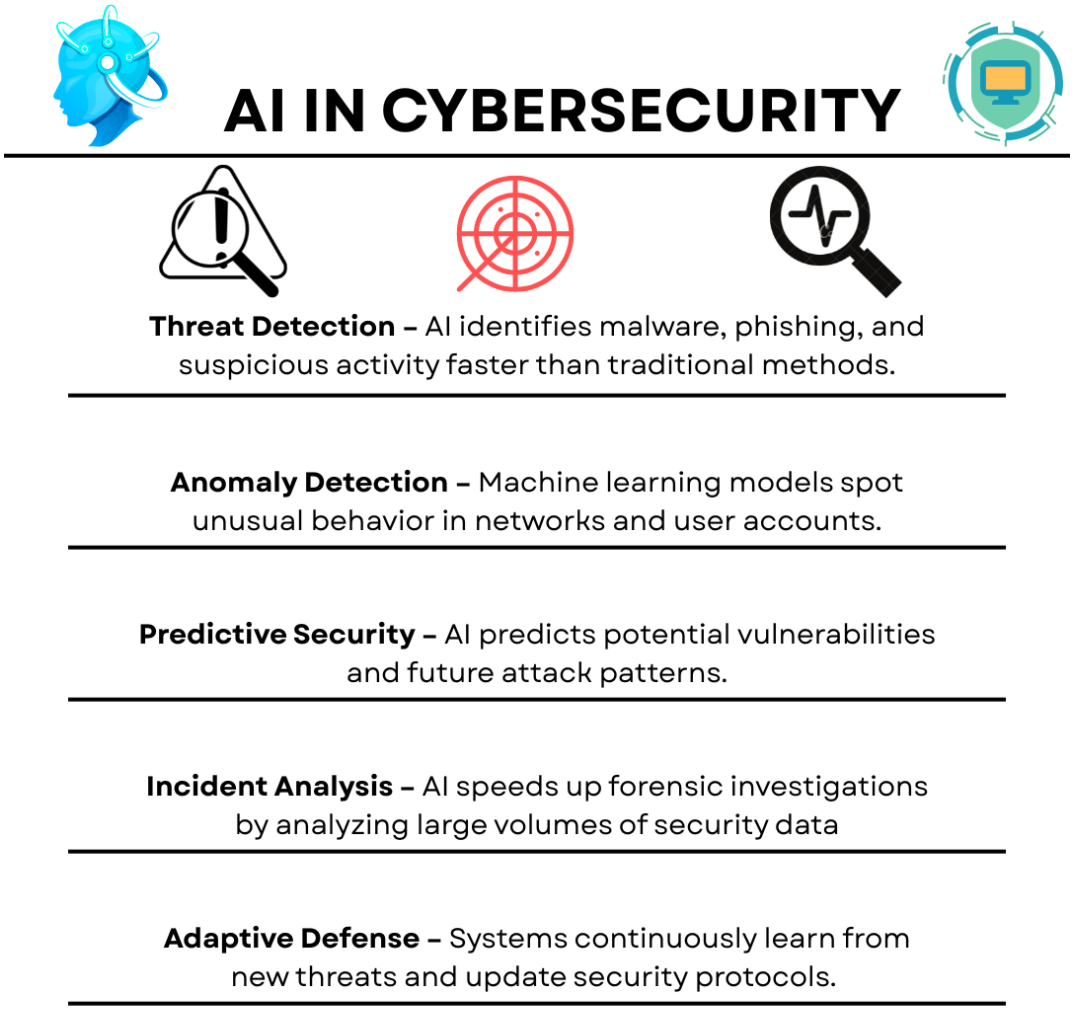


Figure: 2 showing AI role in cybersecurity

AI is also essential in automated response of incidents. The nature of cybersecurity operations entails prompt intervention to ensure threats are halted and diffused, but human reaction is quite delayed on most occasions. The potential of AI-powered systems is the ability to automatically detect compromised systems, prevent malicious data traffic and actively implement countermeasures before manual actions arise. Such capability in real-time response is especially useful in large networks with the necessity to quickly prevent the occurrence of a cascading failure [23].

Even AI models that represent Natural Language Processing (NLP), including the ChatGPT, are also used to further expand the potential of AI in cybersecurity. ChatGPT will help to produce security reports, give guidelines on how to manage vulnerability and train the staff on best practices. It also has the ability to simulate social engineering attacks as part of the training process to assist an organization in training workers to identify and deal with phishing, email scams, and other human-focused attacks. Although AI integration in cybersecurity has a number of beneficial factors, challenges, and limitations are inherent to it [24]. The training of AI systems needs large data sets of

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

high quality, poor data quality may cause inaccurate identification of threats or false positives. Attackers are also utilizing AI increasingly to create more serious cyber threats, which creates an ever-growing cat and mouse game between the attackers and the defenders. Special attention should be paid to ethical aspects related to data privacy (considerations of monitoring activities of the user) and the ability to understand why and how decisions are made (transparency AI) to observe trust and compliance [25].

AI has revolutionized cybersecurity since it offers threat detection capabilities, predictions, automated alerts, and increased training abilities. Combining ChatGPT and other AI applications can provide more assistance in education, reporting, and decision-making, which makes a cybersecurity system resilient, efficient, and flexible [26]. In the context of the evolution of cyber threats, the current trends in the development and implementation of AI-based cybersecurity will be critical to the task of protecting global digital infrastructures with its ability to protect sensitive information, and the steadiness of interdependent systems [27].

AI IN COMPUTER SCIENCE

Artificial intelligence (AI) has now become one of the fundamentals of the current computer science, impacting the creation of algorithms and software system, data processing and human-computer interaction procedures. Through its ability to allow machines to learn and make decisions using data, AI is also not only changing the paradigms of traditional computers but also creating new opportunities of innovation in all the fields. It has transformed itself in connection with computer science to enhance the speed of solving problems, optimize workflow, and broaden the line that machines are able to cover [28].

Development and optimization of AI algorithms are among the greatest contributions of artificial intelligence to computer science. Deep learning and machine learning are methods by which computers can understand complicated data and gradually learn new results incrementally. AI-incorporated algorithms can be adaptive to adverse conditions, dynamically optimize and solve computationally intensive or complex problems [29]. As an example, algorithms based on the AI have been utilized to streamline network traffic, speed up database queries, and increase the effectiveness of computational work on large scales problem simulations.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

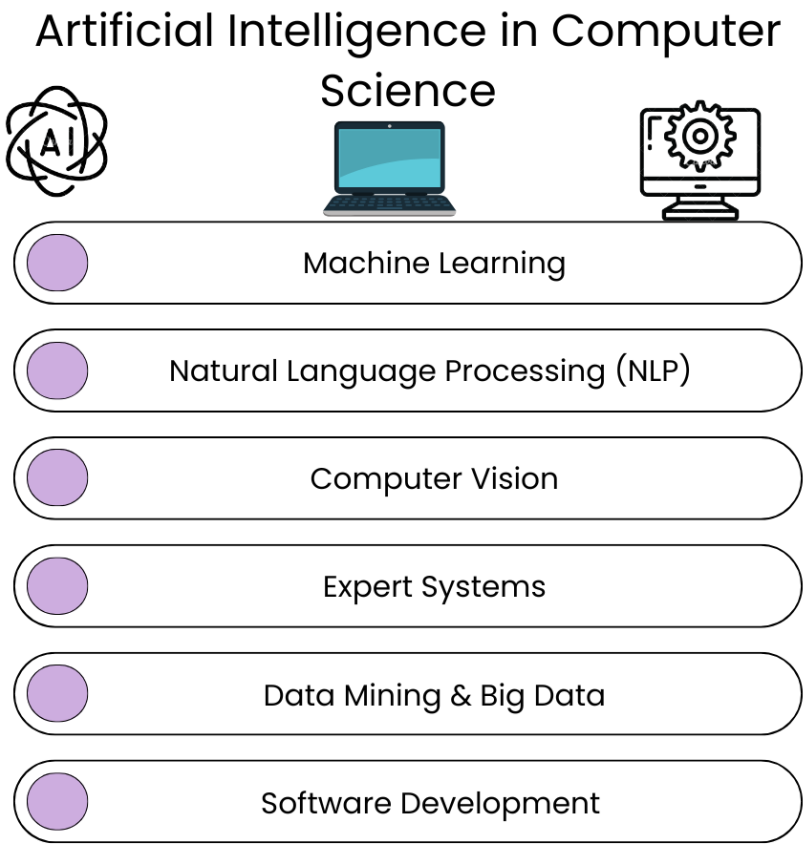


Figure: 3 showing AI in computer science

Data science and big data analytics are also critically important factors and data science is a significant element in AI. The fact is that the increase in information generated by social media, IoT, scientific study, and business is exponential and needs advanced methods of extraction, analysis, and interpretation. In large data pools, AI algorithms have the potential to extract patterns and trends as well as formulate actionable guidance based on it which traditional statistical methods can not feasibly contain [30]. It is essential to computer scientists whose task is the development of data-driven applications, system optimization and the creation of predictive models in various industries including finance, healthcare and cybersecurity [31].

HCI is in the process of improving user experiences due to the artificial intelligence integration that is currently introducing responsive and personalized human-computer interfaces. Artificial intelligence has potential to learn about user behavior, preferences and needs so that systems may offer personalized recommendations and predictive assistance and provide a context-driven aid. ChatGPT is the most relevant example of the trend, as the conversational interface can help users by solving coding, research and problem-solving tasks making the intricate computational process less obscure and more understandable to humans [32].

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

In spite of the advantages, AI in computer science has limitations, such as the requirements of computational resources, algorithm bias, privacy of data, and explainability. Transparency, fairness, security: These properties are necessary to deploy AI in a trusty and ethical manner. Current research aims at developing explainable AI models, more effective ways to compute faster, and combine AI with specialized knowledge in order to get the best utility and reduce risks [33].

There is no doubt that AI has disrupted computer science in every way, changing algorithms, data analysis, software development, and human-computer interaction. Examples of such tools are ChatGPT, which proves that AI and computing are synergistic, allowing new solutions, their increased productivity, and more intuitive interfaces. The deployment of AI is boundless and necessary given its contribution to the future of computer science, and its prospect not only creates new discovery, development and practice grounds in various fields but is also calling into question the applicability and viability of the proposed model of the future of computer science [34].

POULTRY SCIENCE AND AI

Artificial intelligence (AI) is an innovative technology that has become an asset to the poultry science by contributing to the productivity, animal welfare, diseases control, and efficiency of the operations. Disease breakouts, feed optimization, and resources management are among the issues that the poultry industry is dealing with since it is a vital industry in global food security and nutrition [35]. AI tools such as machine learning, computer vision, and predictive analysis provide alternative solutions to such problems enabling sustainable and profitable capital in running poultry farms [36].

Disease detection and monitoring is one of the most powerful AI in poultry science. Poultry farms are susceptible to infectious diseases like avian influenza, Newcastle disease, and salmonellosis that mainly cause massive economic losses as well as threats to the life of the people. Computer vision and sensor technologies installed in AI-powered systems would be able to constantly observe the birds by detecting any sign of illness, abnormal behavior, or physical abnormalities [37]. As an example, the cameras with application of deep learning algorithms could identify the variability in gait, posture, or feeding habits, thus temporal intervention before the disease spreads could be established. Environmental and biological cases can also be analyzed accordingly by using predictive models that would predict outbreaks of diseases so farmers could start taking preventive measures beforehand [38].

The other aspect that AI has proved very helpful in is feed and nutrition management. Effective use of feed has been essential in maximizing the growth, minimizing its costs, and having fewer effects on the environment. AI algorithms can take into account things like age, weight, growth rate, environmental factors and create accurate feeding plans and individual balanced diets for each flock.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

This precision feeding can also lead to the optimization of growth performance and meat quality in addition to waste and resource efficiency in terms of more sustainable poultry production [39].

On environmental concerns and farm management, AI is also used to monitor. Adequate temperatures, ventilation, humidities and lightings within the poultry houses are required to ensure healthy birds and productive birds. An AI system would be capable of using input data gathered by sensors and IoT gear to measure these parameters in real-time and adjust the environmental settings robotically to keep optimal settings [40]. This keeps them at the same growth rate and avoids stress by the birds and general farm productivity. Moreover, AI has the potential to streamline labor management, automate repetitive processes and gather information about overall operational efficiency so that the farmers could make decisions based on the information. AI-driven knowledge systems, such as ChatGPT are becoming popular in assisting the education, research, and overall decision-making regarding poultry science. Such tools would be capable of offering real time information on how to manage the disease, nutrition, breeding processes, and how to carry out operations in the farms [41]. AI-based knowledge platforms have the potential to empower farmers, veterinarians and researchers to improve flock health and productivity by providing access to the latest research and practical recommendations and enabling them to make data-driven decisions.

Although it holds a lot of potential, AI integration in poultry science has some weaknesses including initial high costs of investment, technical background needed, and quality of data. Also, dilemmas associated with animal welfare and data protection should be properly considered to have a responsible implementation. These challenges need to be addressed through joint work between AI developers, poultry scientists, and other interested industry participants so that AI can be as beneficial as possible [42].

Artificial and machine intelligence has a chance of transforming poultry science through the process of disease prediction, precision feeding, environmental optimization and spreading knowledge. The combination of AI technologies, such as ChatGPT, promotes the efficient, profitable and sustainable poultry farming process, besides prioritizing animal welfare and productivity [43]. With the ongoing development of AI, its use in poultry science is likely to widen the field and result in the innovation and resiliency in the poultry industry world over.

ROLE OF AI IN FOOD SCIENCE

Artificial Intelligence (AI) is gaining extreme importance in the field of food science changing how food is being made, processed, monitored and delivered. Supplying quality and safe food, streamlining supply chains, minimizing waste and consumer demand fluctuation are just some of the challenges that exist within the food industry. The use of AI is making the food system more efficient,

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

sustainable, and innovative with the help of machine learning, predictive analytics, computer vision, and natural language processing technology such as ChatGPT throughout the food system [44].

Food quality and safety monitoring is one of the greatest applications of AI in food science. Distributing food that is subject to rigorous safety specifications is very important to the health of consumers and the regulatory environment. AI-based systems that have the capability of computer vision and image recognition will allow detecting contaminants, defect or adulteration of raw materials and finished goods. Patterns in machine learning algorithms look for patterns in the production data so as to point out the existing dangers, forewarn of spoilt products, and curb the danger of contamination [45]. The ability not only makes the food safer but also increases consistency in the quality of the products which is key to consumer confidence and brand image.

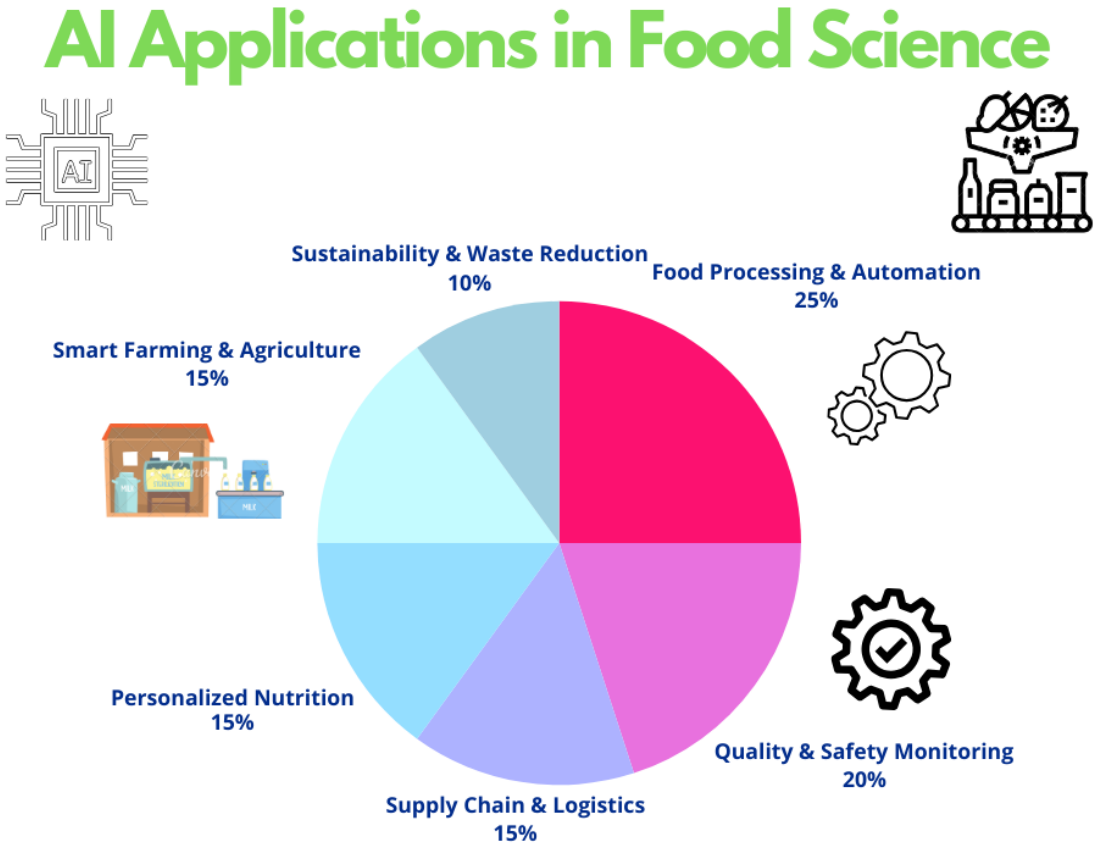


Figure: 4 showing AI applications in food science

AI has also been proven to have significant influence in supply chain optimization. The food chain in the world is complex in that there are numerous stages in the food supply chain process. AI has the ability to examine input data on historical data, weather trends, consumer behavior, and supply chain information to enhance inventory control, the routes used and transportation schedules. Predictive analytics would also cut down wastage by addressing the lack of shortage or over-production in advance whereas real-time monitoring would make it possible to respond to disruption promptly [46].

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

AI helps save costs, become more efficient, and environmentally friendly as supply chains are optimized.

The food industry is also utilizing AI in innovating and developing products. Using consumer preferences, nutrition and sensory attributes, the machine learning algorithm can provide feedback to support the development of new food products that meet consumer needs in the market. The AI allows the mockup of ingredients combinations and forecasting of flavor and texture performances and nutritional qualities and helps to develop healthier, better tasting, and more sustainable food. Specifically, ChatGPT can help researchers and product developers summarize the literature, come up with ideas, and have answers regarding formulation practices, making the process of introducing something new and informed and quicker [47].

The other potential use is in predictive maintenance and process improvement food processing. With the help of AI systems, the machinery and production lines can be observed, equipment failures can be forecasted and maintenance can be prescribed, which will reduce downtime and guarantee constant processes. ML tools would make cooking, fermentation, and packaging processes leaner minimizing energy use and consistency of the product [48].

AI is revolutionizing food sciences through making food much safer, its quality, efficiency through its supply chain, innovation of its products, and consumer interaction. Knowledge dissemination, research and practical decision-making requires the integration of tool such as ChatGPT, which boosts innovation in the food industry. With the further evolution of AI technology, there lies potential in its adoption in food science to further entrench sustainability, efficiency, and responsiveness as far as developing working solutions to the dynamic needs of a growing global population is concerned [49].

ISSUES AND MORALITY

With the implementation of such technologies like Artificial Intelligence (AI) and ChatGPT in healthcare, cybersecurity, computer science, poultry science, and food systems, unprecedented innovation and efficiency are possible, alongside solving problems. But at the same time along with these advantages, challenges and ethical aspects are also great that have to be considered in order to use AI technologies responsibly, safely and equally. To maintain the trust and guarantee compliance, these issues are essential to identify and mitigate them to promote the overall positive impact of AI [50].

Data quality and availability is one of the major issues when it comes to the implementation of AI. In order to train and make predictions, AI systems deeply depend on large numbers of high-quality, diverse and representative datasets. In domains such as healthcare or poultry science, unfinished, biased, or low-quality data may be used to produce inaccurate diagnostics or faulty predictions or

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

inferior recommendations. Equally, in food science and cybersecurity, keeping the data derived through AI in line can be problematic due to inconsistency or outdated information [51]. This is necessary to enhance the accuracy and the effectiveness of the system by ensuring suitable data collection process, preprocessing and data validation.

The other problem of concern is that of algorithmic bias and fairness. The data used to train AI models consists of previous results and observations, which assume biases present in the environment or operational shortcomings. As an illustration, biased data in health care might cause the disparity in treatment recommendation among various patient population groups. In the field of cybersecurity, models can be over- or under-predictive, over- or under-detecting threats founded on skewed training data. To curb bias, datasets need to be curated properly, audited algorithms, and decision-making processes should be transparent, and equitable results must be achieved on all populations [52].

Good ethical and regulatory practices is another decisive element. The speed at which AI is being deployed tends to surpass its current legal and regulatory bodies. In most sectors, questions over liability, accountability, and discussion of morally implementing AI are unanswered. As an example, what happens should an AI system make a wrong diagnosis of a patient? Or what happens to organizations should AI falsely detect a cyber-threat? There should be clear guidelines, standards and also rules of the industry to be operating with AI responsibly [53]. There is the accessibility issue and technical knowhow. To implement AI technologies, a certain set of knowledge, infrastructure, and monetary resources is necessary. Micro organizations, small farms or research organizations could experience adoption barriers which would further contribute to the disparities in technological development and productivity increases [54].

With healthcare, cybersecurity, computer science, poultry science, and food systems being the key areas that can transform using AI and ChatGPT, covering data quality, bias, privacy, transparency, ethics, and access, are the issues through which their implementation is accompanied. These cannot be solved without the involvement of a multi-stakeholder solution that encompasses technical solutions, ethics oversight, regulatory compliance, and education. Addressing these issues before they come into prior use in their various fields, AI will be launched responsibly, safely, and without bias, optimizing the benefits and mitigating the risks of its applications in businesses [55].

FUTURE PERSPECTIVES

Artificial Intelligence (AI) and generative models such as ChatGPT are rapidly evolving and are set to transform the future of various fields such as the field of healthcare, cybersecurity, computer science, poultry science, and food systems. As much as the existing applications have manifested great levels of benefits, it can be argued that the future generation of AI technologies will have even

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

greater levels of transformative potential. Future perspectives study implies the development of trends, technological innovations that make it possible to see the new interdisciplinary, and the impact of the overall society using AI [56].

The future in healthcare, therefore, pertains to a higher degree of precision medicine, predictive analytics, and autonomous clinical systems. The further development of machine learning and deep learning will allow diagnosing the disease more accurately, detecting it earlier, and developing an individual plan of treatment. The implementation of AI systems will involve the greater integration of real-time monitoring of patients data which will be provided in terms of wearable devices, electronic health records, and genomic information to provide proactive care [57]. Generative AI systems, such as ChatGPT, will also become virtual health assistants, providing individualized health advice, patient education and decision support, at the expense of clinical workload and easier access to care in underdeveloped areas [58].

AI will certainly take center stage in cybersecurity where there are continuing advancements in cyber threats. The predictive models will develop to predict new attack vectors, and the response systems will be automated and implement a close-to-instant breach of mitigation. Through threat intelligence driven AI, information in global networks will be combined to form collaborating defense ecosystems. Also, generative AI technology such as ChatGPT would be useful to security teams in terms of analyzing threat reports, create real-time recommendations and perform simulations of cyber-attacks to be used in training, improving organizational resilience [59].

The ways in which AI will support computer science are new developments in algorithm creation, computerization of software and human-computer interface. The AI models in the future are going to be more adaptive, efficient, and have the domain of reasoning. Computation speed and capacity will also be improved by integration with quantum computing, edge computing, and cloud infrastructures to the point of solving problems that were never solvable previously [60]. Experiments show that chatGPT and other models will further simplify coding, knowledge search and problem solving and highly sophisticated AI tools will be made available to a wide range of developers and researchers [61].

The future of AI in poultry science is to build up highly intelligent farm administration frameworks that embrace health, productivity, and sustainability optimisation. The disease prevention and feed efficiency, and breeding plans will be enhanced through predictive analytics. Smart robots and IoT sensors under AI would provide on-demand control and monitoring of the environment and even automation of repetitive tasks [62]. The ChatGPT will be the knowledge and decision-support tool used by farmers, veterinarians, and researchers to spread the best practices and incorporate recent

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

scientific knowledge into the flock and farm health and efficiency enhancement [63].

Although such important improvement is observed, there is still a lot to consider when it comes to the future of AI in terms of its ethical, regulatory, and social issues. Data protection, fairness and responsibility of algorithm, accountability and equity of access and access are concerns that should be resolved to provide responsible deployment. Shared solutions among the researchers, policymakers, industrial players and the citizens will be crucial in ensuring that the gains are maximized and possible risks reduced. The potential of future AI and ChatGPT application is defined as more inclusion, more accuracy and expanded accessibility within the areas of healthcare, cyber security, computer science, poultry science, and food systems [64]. The technologies can promote efficiency, innovation, and sustainability and also change the interaction between humans and machines and data. Through interdisciplinary work, ethical guidelines and ever-present innovation, AI will soon become the backbone of modern advancement to create a more educated, secure and interconnected society [65].

CONCLUSION

ChatGPT is artificial intelligence (AI) and generative modeling that has become a phenomenon in various fields such as healthcare, cybersecurity, computer science, poultry sciences, and food systems. This review has promoted the multidimensional uses of AI, which make it capable to increase efficiency, accuracy, and innovation, as well as work in difficult situations in every domain. In terms of predictive diagnostics in healthcare to automated threat detection in cybersecurity, the latest AI technologies are transforming the centuries-old routine and making the process of decision-making more informed.

In the medical field, AI has made a great contribution to disease detection, individual patient treatment plans, and patient monitoring. The abovementioned capabilities are further optimized using tools such as ChatGPT, which allows clinical decision support, streamline administrative work, and integrate patients and providers. Likewise, AI has enhanced cybersecurity by enhancing defense mechanisms in terms of anomaly detection, automated response to incidents and predictive analytics. The platforms of generative AI are also used in security awareness, threat simulation, and generation of reports and thus is able to make the digital world a more resilient space.

In computer science, AI has encouraged the improvement of algorithms, data mining, computer program automation and human-computer interaction. The benefits of such synergy between Artificial Intelligence and computing can be seen when using ChatGPT as a large language model that can be used to code, search knowledge, and solve problems. In farming, especially poultry science, AI has enhanced control of diseases, feed optimization, and environmental surveillance

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

whereas ChatGPT shapes out a solution as a form of knowledge dissemination and decision-making platform to farmers and researchers. In the food sector, AI will take care of quality assurance, allow optimization of supply chains, and speed up the process of innovation in products, and ChatGPT can be used to assist in research, individual recommendations, and advice.

Though the potential of AI integration can be a game changer, the initiatives are met with problems. There are the ethical concerns within the context of data quality, privacy, security, algorithmic bias, transparency, and data accessibility that are to be addressed with care. Regulation and ethical considerations play a decisive role in deploying responsibly and gaining popular confidence. To improve the situation, interdisciplinary, continuous research, and policymaking are essential to be able to not only enjoy the benefits of AI use but also to reduce potential risks to a minimum.

Considering the future, the future of AI and ChatGPT shows potential and can be even more integrated, prediction-based, and have broader availability. The use of forthcoming technologies like edge computing, quantum computing, and better machine learning algorithms will take the AI even further in terms of scope and effectiveness. As long as AI addresses the issues of ethical, transparent, fair adoption, this technology could become a stone to build innovations, productivity, and sustainability in different industries.

The efficiency, precision, and creativity are all possible in AI and ChatGPT healthcare, cybersecurity, computer science, poultry science, and food systems. Their combination concerns not only the problems but also opportunities of the future, and potential solutions can be presented as radical innovation and can be used to transform human decision-making and operational efficiency as well as the welfare of the society. With interdisciplinary collaboration, continuous innovation, and responsible operations, AI will have the potential to create a more intelligent, secure and interconnected world, transforming and enhancing progress in every field and quality of life on a worldwide basis.

REFERENCES

[1]. 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.

[2]. 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.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

[3]. 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.

[4]. 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.

[5]. 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.

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

[7]. 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.

[8]. 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.

[9]. Kaur, Ramanpreet, Dušan Gabrijelčič, and Tomaž Klobučar. "Artificial intelligence for cybersecurity: Literature review and future research directions." Information Fusion 97 (2023): 101804.

[10]. 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.

[11]. 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.

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

[13]. 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.

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

[15]. 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.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

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

[17]. 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.

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

[19]. Apell P, Eriksson H. Artificial intelligence (AI) healthcare technology innovations: the current state and challenges from a life science industry perspective. Technology Analysis & Strategic Management. 2023 Feb 1;35(2):179-93.

[20]. 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.

[21]. 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.

[22]. 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.

[23]. Bauer GR, Lizotte DJ. Artificial intelligence, intersectionality, and the future of public health. Am J Public Health. 2021; 111:98–100.

[24]. 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.

[25]. Chaudhary, Harsh, et al. "A review of various challenges in cybersecurity using artificial intelligence." 2020 3rd international conference on intelligent sustainable systems (ICISS). IEEE, 2020.

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

[27]. 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.

[28]. Ogbonnia, Otuu Obinna, et al. "Trust-Based Classification in Community Policing: A Systematic Review." 2023 IEEE International Symposium on Technology and Society (ISTAS). IEEE, 2023.

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

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

[30]. Ross J, Stevenson F, Lau R, Murray E. exploring the challenges of implementing e-health: a protocol for an update of a systematic review of reviews. BMJ open. 2015 Apr 1;5(4):e006773.

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

[32]. Yaacoub, J.P. A., Noura, H. N., Salman, O., & Chehab, A. (2022). Robotics cyber security: Vulnerabilities, attacks, countermeasures, and recommendations. International Journal of Information Security, 21(1), 115-158. https://doi.org/https://doi.org/10.1007/s10207-021-00545-8

[33]. Zaman, S., Alhazmi, K., Aseeri, M. A., Ahmed, M. R., Khan, R. T., Kaiser, M. S., & Mahmud, M. (2021). Security threats and artificial intelligence based countermeasures for internet of things networks: a comprehensive survey. Ieee Access, 9, 94668-94690. https://doi.org/10.1109/ACCESS.2021.3089681

[34]. 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.

[35]. Trewin S, Basson S, Muller M, Branham S, Treviranus J, Gruen D, et al. Considerations for AI fairness for people with disabilities. AI Matters. 2019; 5:40–63.

[36]. 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.

[37]. Amann J, Blasimme A, Vayena E, Frey D, Madai VI, Precise4Q Consortium. Explainability for artificial intelligence in healthcare: a multidisciplinary perspective. BMC medical informatics and decision making. 2020 Nov 30;20(1):310.

[38]. 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.

[39]. Zou, C. C., Gong, W., & Towsley, D. (2002). Code red worm propagation modeling and analysis. Proceedings of the 9th ACM conference on Computer and communications security,

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

[41]. Davenport T, Kalakota R. The potential for artificial intelligence in healthcare. Future healthcare journal. 2019 Jun 1;6(2):94-8.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

[42]. 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.

[43]. 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.

[44]. Patil, Pranav. "Artificial intelligence in cybersecurity." International journal of research incomputer applications and robotics 4.5 (2016): 1-5.

[45]. Soni, Vishal Dineshkumar. "Challenges and Solution for Artificial Intelligence in Cybersecurity of the USA." Available at SSRN 3624487 (2020).

[46]. 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.

[47]. Polevikov S. Advancing AI in healthcare: a comprehensive review of best practices. Clinica Chimica Acta. 2023 Aug 1;548:117519.

[48]. 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.

[49]. 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.

[50]. Secinaro S, Calandra D, Secinaro A, Muthurangu V, Biancone P. The role of artificial intelligence in healthcare: a structured literature review. BMC medical informatics and decision making. 2021 Apr 10;21(1):125.

[51]. 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.

[52]. Goosen, Ryan, et al. "ARTIFICIAL INTELLIGENCE IS A THREAT TO CYBERSECURITY. IT'S ALSOASOLUTION." Boston Consulting Group (BCG), Tech. Rep (2018).

[53]. Otuu, Obinna Ogbonnia. "Wireless CCTV, a workable tool for overcoming security challenges during elections in Nigeria." World Journal of Advanced Research and Reviews 16.2 (2022): 508-513.

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

ISSN : 3079-5761
Volume 1, Number 3, 2025
https://doi.org/10.70445/gtst.1.3.2025.177-197

[54]. Taddeo, Mariarosaria, Tom McCutcheon, and Luciano Floridi. "Trusting artificial intelligencein cybersecurity is a double-edged sword." Nature Machine Intelligence 1.12 (2019): 557- 560

[55]. 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.

[56]. 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.

[57]. Reddy S, Allan S, Coghlan S, Cooper P. A governance model for the application of AI in health care. Journal of the American medical informatics association. 2020 Mar;27(3):491-7.

[58]. 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.

[59]. 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.

[60]. Sun G, Zhou YH. AI in healthcare: navigating opportunities and challenges in digital communication. Frontiers in digital health. 2023 Dec 19;5:1291132.

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

[62]. 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

[63]. Jiang F, Jiang Y, Zhi H, Dong Y, Li H, Ma S, Wang Y, Dong Q, Shen H, Wang Y. Artificial intelligence in healthcare: past, present and future. Stroke and vascular neurology. 2017 Dec 1;2(4).

[64]. Ucci, D., Aniello, L., & Baldoni, R. (2019). Survey of machine learning techniques for malware analysis. Computers & Security, 81, 123-147. https://doi.org/https://doi.org/10.1016/j.cose.2018.11.001

[65]. Urbinati, A., Chiaroni, D., Chiesa, V., & Frattini, F. (2020). The role of digital technologies in open innovation processes: an exploratory multiple case study analysis. R&d Management, 50(1), 136-160. https://doi.org/https://doi.org/10.1111/radm.12313

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.