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Cours Title: Research Methodology in
Computer Science

Assignment #1

Artificial intelligence in medicine



Kapa, s. (2023) The Role of Artificial Intelligence in the Medical Field Journal of Computer and Communications, 11, 1-16

The role of artificial intelligence in the medical field journal of computer and communications 11-1 to 16 artificial intelligence AI has brought about a medical practitioners are revolutionary transformation in the medical field AI has increasingly interested in applying AI innovation to healthcare systems emerged as a powerful force leveraging advanced algorithms and computing power the application of AI in managing to enhance various aspects of healthcare delivery patients diagnosing illnesses and providing treatment promises to revolutionise medical practises this literature review aims to identify relevant sources of on its advantages information on the implementation of AI in healthcare focusing the review yielded valuable insights into the diverse ways AI is and disadvantages the utilised in the medical industry and its impact on patient care and recovery findings indicate that AI streamlines tedious tasks by providing accurate and speedy services enabling early detection of illnesses and leading to positive patient AI also facilitates real time data analysis which is crucial for addressing outcomes additionally the use of AI helps reduce patients conditions with clear objectives moreover AI enables precision medicine by burnout among medical practitioners looking ahead efficiently obtaining and analysing large amounts of information enhancing future directions include the implementation of a legal framework transparency and accountability and addressing challenges related to data standardization.

Shoukat, M. Shaheer, M. Javed, H. Javed, S. M. Aun, A. Ahmed, F. (2022).

A Review of Application of Artificial Intelligence in Medicine

Artificial intelligence AI has made significant advancements in various industries including banking education manufacturing retail and healthcare in the medical field AI is extensively used for tasks such as patient diagnosis drug discovery improving physician patient communication medical document transcription and remote patient treatment AI systems have demonstrated high levels of accuracy comparable to human experts in Medical Sciences this has led to speculation about the potential replacement of humans in certain medical roles the objective of this review is to introduce the use of AI in medicine and provide insights into current and future trends.

(2017) Artificial Intelligence for Health and Health Care.

The main focus of this research is on how artificial intelligence AI which is a wide term for computer based decision making processes might help to improve health in while al is based on sophisticated statistics and machine learning healthcare groundbreaking developments in the neural network sub fielder currently taking numerous scientific disciplines including public health and medicine have place in well defined diagnosis tasks experienced immense enthusiasm as a result of this deep neural networks have already shown early signs of performance comparable to furthermore al based tools are currently available in the greatest human clinicians health focused applications that may be used on mobile network devices like smartphones.

LIU, P, LU, L. ZHANG, J. HUO, T. LIU, S. YE, Z. (2021). Application of Artificial Intelligence in Medicine: an Overview.

Artificial intelligence AI is a rapidly evolving field that utilises computer technology to its impact on the medical field has been simulate and expand human intelligence profound transforming traditional healthcare practises AI has improved the accuracy and efficiency of patient diagnosis by leveraging data from radiological pathological and biochemical examinations it has also enhanced and a scopic ultrasonographic medical treatments throughout the perioperative. Including preoperative preparation leading to improved surgical outcomes surgery and postoperative recovery furthermore AI has revolutionised medical drug production management and the purpose of this review is to education opening up new possibilities in these areas provide an overview of the applications of AI in medicine and offer insights into future trends.

Ramesh, A & Kambhampati, Chandra & Monson, John & Drew, Philip. (2004). Artificial Intelligence in medicine. Annals of the Royal College of Surgeons of England. 86.334-8.

Artificial intelligence is a branch of computer science capable of analysing complex medical data their potential to exploit meaningful relationship within a data set can be used in the diagnosis treatment and predicting outcome in many clinical scenarios Medline and Internet searches were carried out using the keywords artificial intelligence and neural networks computer further references were obtained by cross referencing from key articles an overview of different artificial intelligent techniques is presented in this paper along with the review of important clinical applications the proficiency of artificial intelligent techniques has been explored in almost every field of medicine artificial neural network was the most commonly used analytical tool whilst other artificial intelligent techniques such as fuzzy expert systems evolutionary computation and hybrid intelligent systems have all been used in different clinical settings discussion artificial intelligence techniques have the potential to be applied in almost every field of medicine there is need for further clinical trials which are appropriately designed before these emergent techniques find application in the real clinical setting.

Shaheen, M. Y. (2021). Application of Artificial Intelligence (AI) in healthcare: A review,

Artificial intelligence AI is playing a transformative role in modern healthcare by enabling technologies that can predict understand learn and act from identifying new genetic relationships to assisting in surgical procedures AI has the ability to detect subtle patterns that may be overlooked by humans this study focuses on exploring and discussing the various applications of AI in the health sector with a specific emphasis on three emerging areas I LED drug discovery clinical trials and patient care the findings highlight the benefits of AI and healthcare such as speeding up the drug discovery process and automating target identification for pharmaceutical companies additionally AI assisted clinical trials are capable of handling large amounts of data and generating highly accurate results medical AI companies are also developing systems to assist patients at different levels utilising clinical intelligence to analyse patients medical data and provide insights for improving their quality of life.

Year of Publication	Title	Author	Methodology	Results	Weaknesses/criticism
2023	The Role of Artificial Intelligence in the Medical Field	Sharidula Kapa	The study explores the transformative role of artificial intelligence AI in healthcare by examining recent developments in AI applications in healthcare the facilities research focused on AI's use in clinical decision making treatment optimization disease diagnosis and patient care the study aimed to identify key themes and trends related to the disadvantages and advantages of forming AI unbiased findings through critical examinations of its role in transforming patient out	This study explores the advantages and disadvantages of artificial intelligence AI in the medical industry focusing on its potential to improve patient outcomes AI has revolutionised the industry by integrating machine learning algorithms and data analysis leading to improved healthcare quality and patient outcomes the study highlights the significant changes AI systems have made in the medical field highlighting the potential Angel for significant transformations and challenges associated with these advancements	The studies focus on AI applications in healthcare may overlook older or less advanced settings limiting generalizability the inclusion criteria may introduce bias and the study may not provide sufficient contextual information ethical considerations like data privacy and doctor patient relationship may not be thoroughly explored affecting the acceptance and implementation of AI systems

			comes in the medical field the inclusion criteria focused on the most recent developments in AI applications in healthcare facilities		
2022	A Review of Application of Artificial Intelligence in Medicine	Muhammed Usman Shoukat, Mohammed Shaheer, Hamza Javed,	artificial intelligence AI has been utilised in various fields including banking education supply chains manufacturing retail and in healthcare the Medical Sciences AI has been used for diagnosing patients	artificial intelligence AI is revolutionising various industries and human interactions including patient diagnosis medical drug production management and education	the study discusses the successful use of AI in healthcare but lacks concrete evidence to support its claims it mentions the eyes effectiveness in early detection diagnosis treatment monitoring and

		Sidra Javed, M. Ali Aun and Furqan Ahmed	drug discovery and improving communication between physicians and patients recent studies have shown that AI has been successfully employed in healthcare procedures including early detection diagnosis treatment monitoring contact tracing case prediction drug development in disease prevention deep learning systems have been developed to analyse pulmonary lung CT data and machine learning algorithms have been applied to analyse COVID 19CT scans point of care diagnostic services have been proposed and i based drug screening methods have been developed to identify	in healthcare AI is transforming patient experience clinician practises and Pharmaceutical industry operations the future of AI and healthcare could involve tasks ranging from answering phone calls to designing therapeutic drugs reading radiology images and communicating with patients	Drug development but doesn't address potential limitations or challenges the study also doesn't address ethical implications such as data privacy algorithmics bias and Doctor patient relationship and the challenges of integrating AI into healthcare infrastructure such as interoperability data quality and staff acceptance
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			potential drugs for COVID-19 treatment research on AI algorithm assistance has also accelerated the development of COVID-19 vaccines		
2017	Artificial Intelligence for Health and Health Care	--	a CNN algorithm has demonstrated promising results in automated skin cancer evaluation with similar accuracy to dermatologists at first and second level however the algorithm's performance is limited by sensitivity and accuracy in training sets further work is needed for wider clinical settings	the development of new techniques using algorithms requires peer reviewed R&D which can protect against deceptive or poorly validated use the use of AI diagnostics requires more validation than supporting information smart devices are revolutionising health monitoring and AI and smart devices will become increasingly interdependent in health related fields mobile devices will create massive datasets opening new possibilities for AI based health and care tools	the study reveals an algorithm similar to dermatologists inaccuracy but lacks information on the data set used for training and testing the algorithm's performance may vary across different populations skin types and regions limiting its generalizability the study also lacks details on training methods and challenges faced making it difficult to assess reliability it also acknowledges the need for further research in wider clinical settings

2021	Application of Artificial Intelligence (AI) in healthcare: A review	Mohammed Yousef Shaheen	artificial intelligence al is a new technology that uses computer technology to simulate and expand human intelligence it has significantly transformed the medical environment improving patient diagnosis enhancing surgical treatments and playing a crucial role in drug production management and education this review introduces ALS application in medicine and predict future trends	artificial intelligence al is increasingly being used in healthcare potentially aiding inpatient treatment and administrative tasks while some publications suggest al can perform better than humans in certain processes it will take time for AI to replace many medical jobs despite advancements AI usage in Healthcare is still in its early stages with continuous research enhancing its capabilities AI and machine learning can significantly improve patient quality of life	E statement discusses the potential benefits of AI in healthcare such as speeding up processes and improving patient care but lacks concrete evidence or it references also fails to address challenges such as privacy concerns ethical considerations and the impact on healthcare professionals in the a workforce balanced assessment of AI's impact on Healthcare is crucial as it requires A comprehensive understanding of its limitations biases and in certainties
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2021	Application of Artificial Intelligence in Medicine: An Overview	Peng-ran LIU, Lin LU, Jia -Yao ZHANG, Tong -tong HUO, Song-Xiang LIU, Zhe-Wei YE	artificial intelligence is a new technology that uses computer technology to simulate and expand human intelligence it has significantly transformed the medical environment improving patient diagnosis enhancing surgical treatments and playing a crucial role in drug production management and education this review introduces ALS application in medicine and predict future trends	al technology is a high tech production that adapts to contemporary era developments following the trends of the past it has significantly changed the medical field promoting patient diagnosis through various examinations enhancing surgical treatments and playing a crucial role in drug production management and education the future of all technology is expected to be swift and unprecedented bringing the medical field into an unprecedented new era	the statement highlights the significant impact of AI in healthcare including improved patient diagnosis enhanced surgical treatments and drug production however it lacks concrete examples or evidence to support these claims the statement also fails to critically examine potential limitations challenges and ethical implications highlighting the need for a balanced assessment of AI's potential in various healthcare settings and specialties
2014	Artificial Intelligence in medicine	Chandra Kambhampati, Philip Drew, John RT Monson	Medline and Internet searches were carried out using the keywords artificial intelligence and neural networks computer further references were obtained by cross referencing	the proficiency of artificial intelligent techniques has been explored in almost every field of medicine artificial neural network was the most	the study provides an overview of artificial intelligence techniques in their clinical applications but lacks specific information about search methodology criteria and

			from key articles an overview of different artificial intelligent techniques is presented in this paper along with the review of important clinical applications	commonly used analytical tool whilst other artificial intelligent techniques such as fuzzy expert systems evolutionary computation and hybrid intelligent systems have all been used in different clinical settings artificial intelligence techniques have the potential to be applied in almost every field of medicine there is need for further clinical trials which are appropriately designed before these emergent techniques find application in the real clinical setting	inclusion exclusion criteria it also discusses the proficiency of AI techniques but fails to critically analyse limitations challenges and risks the study mentions the need for further clinical trials but does not discuss the quality or design of the studies included
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References

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