

Application of Artificial Intelligence in Medical Industry

Group members: Xinyu Li; Nanfang Lv; Yiming Lu; Qiang Zhou

1.Original sentence: As medical students who have recently engaged in similar clinical modules, we have the unique insight and recent memory of our first hospital experience, and thus, our ability to engage these students in peer assisted learning can provide additional benefits to the standard curriculum. (Source: Developing medical artificial intelligence leaders: International university consortium approach)

Paraphrase: The medical students have the unique insight and recent memory of our first hospital experience, because they have recently engaged in similar clinical modules, therefore, in order to providing additional benefits to the standard curriculum, we engage these students in peer assisted learning. (Source: Developing medical artificial intelligence leaders: International university consortium approach)

Summary: The medical students have insight and memory who join in peer assisted learning. (Source: Developing medical artificial intelligence leaders: International university consortium approach)

2.Original sentence: While each of these steps is trivial at an individual level, collectively, they can generate a substantial misuse of scarce medical resources. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

Paraphrase: Though each of these steps is trivial at an individual level, collectively, they can be a serious misuse of medical resources when take together. (Source:

Direct-to-consumer medical machine learning and artificial intelligence applications)

Summary: These steps which collected generate misuse. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

3.Original sentence: To make things more realistic, suppose that the patient performs five tests on a single lesion, obtaining two negative diagnoses, followed by three positive diagnoses. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

Paraphrase: To order to making things more realistic, we make the hypothesis that the patient performs five tests on a single lesion, obtaining two negative diagnoses, followed by three positive diagnoses. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

Summary: The reality is that patients get different results when they get tested. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

4.Original sentence: We say 'ideal' because we recognize that many regulators may not be well positioned to achieve this. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

Paraphrase: During to the fact that many regulators may not in a good position to achieve this goal, we say this idea. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

Summary: We recognize that many regulators may not be well positioned to achieve this, so this is ideal. (Source: Direct-to-consumer medical machine learning and artificial intelligence applications)

5.Original sentence: Artificial intelligence is changing the healthcare industry from many perspectives: diagnosis, treatment, and follow-up. (Source: eHealth and Artificial Intelligence)

Paraphrase: Diagnosis, treatment and follow-up in the medical industry are being changed by artificial intelligence. (Source: eHealth and Artificial Intelligence)

Summary: Artificial intelligence is changing the medical industry in many ways. (Source: eHealth and Artificial Intelligence)

6.Original sentence: AI is growing rapidly, and its successful application in the eHealth domain is possibly due, in general, to the availability of massive datasets and computing resources. AI has found application in many medical branches: oncology, dermatology, radiology, neurology, neurodegenerative diseases, and many others. In general, a major topic of AI in medicine is related to the clinical decision support (CDS) to assist clinicians at the point of care. (Source: eHealth and Artificial Intelligence)

Paraphrase: Due to the massive data set of artificial intelligence and the availability of computing resources, it has been successfully applied and developed rapidly in the field of electronic health. Artificial intelligence has been applied in oncology, dermatology, Radiology, neurology, neurodegenerative diseases and many other disciplines. Artificial intelligence can also help clinicians care, because a main theme of artificial intelligence in medicine is related to clinical decision support. (Source: eHealth and Artificial Intelligence)

Summary: The successful application of artificial intelligence in the field of e-health may be mainly due to the availability of massive data sets and computing resources. (Source: eHealth and Artificial Intelligence)

7.Original sentence: AI can make a quantitative assessment by recognizing imaging information automatically instead of such qualitative reasoning. Therefore, AI can assist physicians to make more accurate and reproductive imaging diagnosis and greatly reduce the physicians' workload. (Source: Artificial intelligence in medical imaging of the liver)

Paraphrase: Artificial intelligence can help doctors make more accurate image diagnosis and reduce doctors' workload, because it can carry out quantitative evaluation by automatically identifying imaging information. (Source: Artificial intelligence in medical imaging of the liver)

Summary: The automatic recognition and imaging of artificial intelligence can greatly reduce the workload of doctors. (Source: Artificial intelligence in medical imaging of the liver)

8.Original sentence: Artificial intelligence (AI), particularly deep learning algorithms, is gaining extensive attention for its excellent performance in image-recognition tasks. They can automatically make a quantitative assessment of complex medical image characteristics and achieve an increased accuracy for diagnosis with higher efficiency. (Source: Artificial intelligence in medical imaging of the liver)

Paraphrase: Artificial intelligence has attracted extensive attention because of its excellent performance in image recognition. It can automatically evaluate complex medical image features more accurately and efficiently. (Source: Artificial intelligence in medical imaging of the liver)

Summary: Artificial intelligence image recognition can improve the accuracy and efficiency of diagnosis. (Source: Artificial intelligence in medical imaging of the liver)

9.Original sentence: Artificial intelligence (AI) can provide many benefits in healthcare, including rapid and effective treatment options. However, previous research on human-computer interactions has demonstrated that people are reluctant to accept AI. People are reluctant to trust AI even if it performs at the level of a human doctor, thereby strengthening the existent literature that shows people prefer human doctors. (Source: Artificial Intelligence Is Trusted Less than a Doctor in Medical Treatment Decisions: Influence of Perceived Care and Value Similarity)

Paraphrase: It is many merits in medical treatment that Artificial intelligence (AI) has, such as rapid and effective treatment options. But people are of really difficulty to accept the AI according to the previous research about the human-computer interactions. Even though AI and human have the same level in medical treatment, People are more willing to have confidence in a human doctor rather than an AI doctor. (Source: Artificial Intelligence Is Trusted Less than a Doctor in Medical Treatment Decisions: Influence of Perceived Care and Value Similarity)

Summary: People believe more in human doctors than in artificial intelligence. (Source: Artificial Intelligence Is Trusted Less than a Doctor in Medical Treatment Decisions: Influence of Perceived Care and Value Similarity)

10.Original sentence: Medical-image-based diagnosis is a tedious task, and small lesions in various medical images can be overlooked by medical experts due to the limited attention span of the human visual system, which can adversely affect medical treatment. However, this problem can be resolved by exploring similar cases in the previous medical database through an efficient content-based medical image retrieval (CBMIR) system. (Source: Effective Diagnosis and Treatment through Content-Based Medical Image Retrieval (CBMIR) by Using Artificial Intelligence)

Paraphrase: Because of the human visual system's limitation about the attention

span, medical experts may ignore some small lesions showed in Medical-image-based diagnosis which is a tedious mission. It may have a bad effect on the medical treatment. However, an effective content-based medical image retrieval (CBMIR) system, which can solve the foregoing problem, can search the parallel cases in the previous medical database. (Source: Effective Diagnosis and Treatment through Content-Based Medical Image Retrieval (CBMIR) by Using Artificial Intelligence)

Summary: Content-based medical image retrieval (CBMIR) system can solve the problem caused by human visual system's limitation. (Source: Effective Diagnosis and Treatment through Content-Based Medical Image Retrieval (CBMIR) by Using Artificial Intelligence)

11.Original sentence: A total of 20% of US trauma death is preventable due to quality gaps. A prehospital study is needed. Manual review of prehospital data is time consuming and cost-prohibitive. Natural language processing (NLP) technology provides a solution to identify treatment appropriateness efficiently. (Source: Artificial Intelligence Facilitates Performance Review and Characterization of Prehospital Emergency Medical Services Treatment.)

Paraphrase: A total of 20 percent of traumatic deaths in the United States can be prevented because of the quality gap. Prehospital studies are required. It is Manual review of prehospital data that is time-consuming and laborious. Natural Language Processing (NLP) provides a solution for effective identification of therapeutic suitability. (Source: Artificial Intelligence Facilitates Performance Review and Characterization of Prehospital Emergency Medical Services Treatment.)

Summary: Natural language processing (NLP) can identify treatment appropriateness effectively. (Source: Artificial Intelligence Facilitates Performance Review and Characterization of Prehospital Emergency Medical Services Treatment.)

12.Original sentence: Recently, a medical doctor usually refers to various types of imaging modalities all together such as computed tomography (CT), magnetic resonance imaging (MRI), X-ray, and ultrasound, etc of various organs in order for the diagnosis and treatment of specific disease. Accurate classification and retrieval of multimodal medical imaging data is the key challenge for the CBMIR system. (Source: Effective Diagnosis and Treatment through Content-Based Medical Image Retrieval (CBMIR) by Using Artificial Intelligence)

Paraphrase: These days, md usually refers to a variety of imaging modalities, such as computed tomography (CT), magnetic resonance imaging (MRI), X-ray, ultrasound and other imaging of various organs, for the diagnosis and treatment of specific diseases. Accurate classification and retrieval of multimodal medical imaging data is a key challenge of CBMIR system. (Source: Effective Diagnosis and Treatment through Content-Based Medical Image Retrieval (CBMIR) by Using Artificial Intelligence)

Summary: A medical doctor usually use various types of imaging modalities for the diagnosis and treatment of specific diseases. CBMIR system is facing challenges. (Source: Effective Diagnosis and Treatment through Content-Based Medical Image Retrieval (CBMIR) by Using Artificial Intelligence)

13.Original sentence: The latest success of AI has been made possible thanks to tremendous growths of both computational power and data availability. In particular, AI applications based on machine learning (ML) algorithms have experienced unprecedented breakthroughs during the last decade in the field of computer vision. (Source: Artificial intelligence and machine learning for medical imaging: A technology review)

Paraphrase: With the immense growth of computing power and data availability, major advances have been made in artificial intelligence. Significantly, one of the most striking developments was the application of AI based on machine learning

algorithm in computer vision.(Source: Artificial intelligence and machine learning for medical imaging: A technology review)

Summary: The application of artificial intelligence in computer vision has made progress because of the progress of computer technology and the increase of data.(Source: Artificial intelligence and machine learning for medical imaging: A technology review)

14.Original sentence: The medical community has taken advantage of these extraordinary developments in order to build AI applications that get the most of medical images, automating different steps of the clinical practice or providing support for clinical decisions. Papers relying on AI and ML report promising results in a wide range of medical applications. (Source: Artificial intelligence and machine learning for medical imaging: A technology review)

Paraphrase: For purpose of establishing AI applications for acquisition of the majority of medical images, automation of varieties of procedure of the clinical practice or helping clinicians to make better decisions, the progress of artificial intelligence has played a great role in the medical field ,according to the papers which devoted to expounding the prospect of artificial intelligence in medical application.(Source: Artificial intelligence and machine learning for medical imaging: A technology review)

Summary: Research shows that artificial intelligence may have broad prospects in the medical field, especially in obtaining medical images, auxiliary diagnosis and so on. (Source: Artificial intelligence and machine learning for medical imaging: A technology review)

15.Original sentence: Deep learning algorithms, in particular convolutional networks, have rapidly become a methodology of choice for analyzing medical images. This

paper reviews the major deep learning concepts pertinent to medical image analysis and summarizes over 300 contributions to the field.(Source: A survey on deep learning in medical image analysis)

Paraphrase: Deep learning algorithms which are represented by convolutional neural networks are becoming more and more important in medical image processing. It is introduced in this article that the major deep learning notions related to medical image analysis and summary of more than 300 research progress in the field.(Source: A survey on deep learning in medical image analysis)

Summary: We introduce the certain concepts in deep learning which play an important role in medical image analysis and summary of research progress in the field. (Source: A survey on deep learning in medical image analysis)