**Title:**

Artificial Intelligence in Medical Science

**Proposal:**

Artificial Intelligence is the intelligence exhibited by the machines after going through some training. AI is the simulated intelligence that machines do to mimic human intelligence after being programmed for the same. AI is one of the thriving sectors of Information Technologies and has a wide range of applications from educational industry to medical and healthcare services, and from gaming applications to E-commerce and mindfulness applications.

Artificial Intelligence plays a crucial role in Medical Science as with the growing advancements and new coming diseases and pandemic, Ai helps in interpretation and analyses of the health care data that is collected from all over the globe. With the help of several algorithms and complex programming, machines are trained for these purposes. AI uses two techniques named as machine learning and deep learning to perform these. In medical science, AI is used in various sectors like Radiology, Disease Diagnosis, Imaging, Telehealth, Psychiatry, Drug creations and interactions, and Electronic record handling.

**Synthesis Matrix:**

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| --- | --- | --- | --- | --- | --- | --- |
|  | **Artificial Intelligence in Medicine: Applications, Implications, and Limitations** | **Artificial Intelligence for Medical Image Analysis: A Guide for Authors and Reviewers** | **Artificial Intelligence in medical imaging: A threat or opportunity? Radiologists again at the forefront of innovation in medicines** | **Artificial Intelligence in Medicine** | **Artificial Intelligence in Medicine: Today and Tomorrow** | **Overview of Artificial Intelligence in medicine** |
| **Main Idea A** | AI works on recognitions methods, in medical science, AI either reads numerical data for blood pressures or image data for scanning. | ML with computer vision leads to medical imaging tasks for the identification of TB, hip fractures, and bone age. | ML uses models and algorithms that act as the brain’s neural network, and thus AI uses many convolutions and artificial neural networks. | AI is used to carry several diagnoses and treatments for the patients needing extra care. | AI ensures the addition of 4P medicine model that includes predictive, preventive, personalized, and participatory, and thus is highly popular in medical science. | AI in medicine has 2 categories, virtual that deals with electronic applications, and physical that includes robots that help with surgeries. |
| **Main Idea B** | Recently, in 2018, a study was done for the development of a Deep Learning-based Automatic Detection Algorithm (DLAD) for chest radiography and detecting cancers. | Supervised and unsupervised learning is used in AI that is supported with labeled and unlabeled data respectively. | AI has positive impacts on radiology with innovations in MRI and neuroradiology and reducing the time taken for them. | DXplain uses AI to analyze symptoms for diagnosis, and Germwatcher detects the infections and germs in patients who are hospitalized. | AI has applications in cardiology in atrial fibrillation and the prediction of cardiovascular risks. It also helps in pulmonary medical and functional tests. | Flowchart method is used to deal with patients based on their histories and the database method is about analyzing the symptoms with AI. |
| **Main Idea C** | Another recent study in 2018 created Lymph Node Assistant (LYNA) to detect breast cancers by tissue sample analysis. | For image analysis, steps followed are classification, regression, and segmentation. | AI analyses the data and recognizes all the defects and diseases if it is perfectly trained. | AI Therapy is an online course to help handle anxiety, and Babylon is an AI application to help with appointment taking in hospitals. | AI also has applications in endocrinology (in glucose monitoring), nephrology (in the prediction of glomerular filtration rate), and gastroenterology (in endoscopy and ultrasound) | Neural networks, hybrid intelligence systems, and fuzzy expert systems are clinical AI sectors that have several applications for varying purposes. |
| **Main Idea D** | FDA only approved a few of these assistive algorithms as not all can be relied on, and not all are developed by the doctors. | Data collection and processing is done to extract meaningful data and label them. | AI only helps with image recognition, and the rest of the tasks of a radiologist stays the same that a machine cannot perform. | Da Vinci robotic surgical system is there to help with precise surgeries. | AI is used in neurology too in epilepsy, and posture, gait, and tremor assessing. | From disease diagnosis to minute surgeries, AI has several uses, and physicians also use many AI-based applications and recommend them too. |
| **Main Idea E** | AI is only valid for tests and analysis purposes, surgeries cannot be trusted on machines still. | Hardware/ Software models are trained and performance testing is carried out to check accuracy. | AI helps with other medical purposes too like prioritizing reports, examining the samples, identifying the issues, automatic recalling of patients, | AI helps doctors with routine tasks and data entry work and help them to spend more time with patient interactions. | In modern times, the doctors will rely on both clinical experiences and also the AI-based analyses. | AI is effective in drug production and even excel more than dermatologists. |
| **Main Idea F** |  |  | It might be helpful in the future with analyzing for cancer detection, predicting the treatment responses, shape modelings, and many more. |  | Ambient clinical Intelligence and Natural Language Processing are there to ensure the resolving of administrative burdens. | AI is gaining success and will be an integral part of medical science. |

**References:**

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