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Short Paper (Artificial intelligence Implementation)

With the world getting computerized, computer-intelligent systems (Artificial intelligence) are fast circulating all over the world, starting with transaction (POS) terminals, digital televisions, traffic lights, smart meters, sensors, and airplane controllers to modern robotic programs. One real-world problem that could benefit from the application of AI is the early diagnosis of diseases. AI algorithms could be trained on medical records and images to identify patterns and make recommendations for early diagnosis. For example, AI could be used to analyze medical images such as CT scans and MRIs to identify early signs of diseases such as cancer. Early diagnosis allows for earlier treatment and can improve patient outcomes.

A solution to the problem of early disease diagnosis using AI is to train a deep learning model on a large dataset of medical images and patient records. The model could be trained to classify diseases based on features extracted from the images and records. To improve the accuracy of the model, it could be trained using a combination of supervised and unsupervised learning techniques. In the supervised learning approach, the model is to be trained on a labeled dataset, where the correct output (i.e., disease diagnosis) is provided for each input (i.e., medical image and patient record). The model learns to predict the output for a given input by minimizing the difference between the predicted output and the correct output. The model is not provided with labeled data in the unsupervised learning approach. Instead, it must discover the underlying patterns in the data by itself. This can be useful for identifying rare or unusual patterns that may not be apparent in the labeled data. Once the model is trained, it can be used to predict the probability of a patient having a particular disease based on their medical images and records. This prediction can then be used by doctors to make informed decisions about the patient's treatment.

Several system components would be necessary for implementing the solution I described, and they include the usage of data, hardware, software, services, maintenance, and update. A large dataset of medical images and patient records would be required to train the AI model. A powerful computer or cluster of computers would be needed to train the deep learning model. Depending on the size of the dataset and the AI model complexity, a high-performance GPU (graphical processing unit) may be needed to power the training process. A deep learning framework such as TensorFlow or PyTorch would be needed to successfully implement the AI model. Amazon web services (AWS) or Google Cloud Platform (GCP) may be needed to store and process the data and run the model. The system will need ongoing maintenance to ensure that it is functioning properly and that the AI model is up to date with the latest medical knowledge.

I can think of several potential ethical concerns related to the proposed solution. The potential ethical concerns may include privacy, bias, decision-making, and responsibility. The AI model will involve the collection and storage of large amounts of personal medical data, this will raise concerns about the privacy of patients. There is a chance that the AI model could be biased if the dataset it is trained on is not a representation of the population. The AI model is a computer system and mistakes in data processing could impact prediction and recommendations that have significant consequences for patients. If the AI makes a mistake or produces an incorrect prediction, it will be necessary to identify where the problem is coming from and who is responsible for the error.

References

Narayanan, R. (2021, December 28). *Understanding key terms in AI*. Medium. Retrieved January 8, 2023, from https://medium.datadriveninvestor.com/understanding-key-terms-in-ai415baa8b37a1