HEART DISEASE PREDICTION USING IMAGE RECOGNITION

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Outcome of the Project - Research Paper

INTRODUCTION

The CardioCare project is a cutting-edge initiative aimed at predicting heart disease through the application of advanced image recognition techniques. Heart disease remains a global health concern, and early detection plays a pivotal role in effective management and prevention. This project leverages the power of self-attention model to analyze medical imaging data, providing accurate predictions that aid in timely diagnosis and intervention. By combining medical expertise with deep learning, CardioCare strives to make a significant impact on the field of cardiology and healthcare.

TECHNOLOGY USED

1. **Image Preprocessing**: Raw medical images are preprocessed to enhance quality, remove noise, and normalize features.

2. **Deep Learning Frameworks**: Deep learning frameworks like TensorFlow and Keras are used to build and train the image recognition models efficiently.

3. **Self-attention model**- It helps focus on important regions of ECG images by assigning different weights to different parts of the input.

4. **Data Augmentation**: To improve model robustness, data augmentation techniques like rotation, flipping, and cropping are applied.

OBJECTIVES

1. **Early Detection**: Develop a smart system to find heart problems in pictures early, helping doctors intervene quickly.

2. **Better Accuracy**: Improve the computer's ability to predict heart issues accurately, reducing mistakes in diagnosis.

3. **Personalized Treatment**: Use pictures to create unique patient profiles for customized care plans.

4. **Medical Collaboration**: Bring together doctors and computer experts to create a powerful tool for heart disease detection and prevention.

METHODOLOGY

The research follows a quantitative research type, employing retrospective analysis of a diverse dataset of cardiac images. The unit of study comprises medical images from different modalities, focusing on heart structures. Data collection involves accessing pre-existing medical databases and collaborating with healthcare institutions for ethical data acquisition. The methodology includes preprocessing images, training deep learning models, and evaluating their performance against ground truth data.

EXPECTED OUTCOMES

The project aims to develop an accurate and reliable image recognition system for early heart disease detection. The outcomes include a validated self-attention model capable of analyzing cardiac images and providing diagnostic predictions. This project's results are expected to contribute to medical research and improve clinical decision-making in cardiac care.

THANK YOU