Predicting Disease using X-Rays

Introduction:

- **Purpose:** To determine whether a person is affected by pneumonia or not using x-ray of lungs and if he has any fracture in the bones(Elbow, Shoulder, Hand).
- **Key Technology Used:** Deep Learning techniques such as CNN, trained the model on VGG16 architecture, flask for backend, keras, TensorFlow.
- **Dataset:** Chest X-Ray Images (Pneumonia) from Kaggle and Bone fracture from Kaggle.
- Accuracy: 85% above in pneumonia detection and 96% above in fracture detection.

Use Case:

- It can be integrated with HemeHealth app, aiding in the early identification of respiratory issues.
- Healthcare institutions can integrate the application with their EHR systems for seamless data sharing and patient management.
- Patients can use the application to obtain a second opinion on their medical images before proceeding with treatment plans.
- In regions with limited access to healthcare facilities, the application can provide preliminary assessments, aiding healthcare workers in making informed decisions for patients.

Conclusion:

In summary, this Flask-based web application represents a valuable tool for medical image analysis and diagnosis. It seamlessly combines two critical functions: pneumonia detection and bone fracture identification. With a user-friendly interface, users can easily upload their X-ray images for assessment. The pneumonia detection feature utilizes a deep learning model to swiftly determine whether an individual is affected by pneumonia, aiding in the early identification of respiratory issues. Additionally, the bone fracture detection feature, specialized for specific body parts such as the elbow, hand, and shoulder, offers accurate fracture diagnosis from X-ray images. This application bridges the gap between cutting-edge technology and healthcare, empowering both healthcare professionals and individuals to make informed decisions regarding health and well-being.

GitHub: Repo

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