✚ AI in Healthcare Training Program

Overview

This program introduces learners to AI concepts and their applications in healthcare. It covers data analysis, machine learning, medical imaging, predictive modeling, and ethical practices, equipping participants with skills to build real-world AI healthcare solutions.

Objectives

- Understand AI, ML, and Deep Learning fundamentals in healthcare.
- Learn to preprocess, analyze, and visualize patient data.
- Build machine learning and deep learning models for diagnosis and prediction.
- Explore medical imaging, patient monitoring, and time-series forecasting.
- Apply ethical, privacy, and regulatory standards (HIPAA, GDPR) to AI systems.

Key Modules

1. Introduction to AI & Healthcare Applications
2. Python Programming for AI (NumPy, Pandas, Matplotlib)
3. Data Preprocessing & Exploratory Data Analysis
4. Statistics & Probability for Medical Data
5. Machine Learning Fundamentals (Regression, Classification, KNN)
6. Deep Learning & Neural Networks (TensorFlow)
7. AI for Medical Imaging (X-ray/MRI Analysis with CNNs)
8. Time-Series Forecasting (ECG, Glucose Levels, Heart Rate)

Outcomes

- Strong foundation in AI and healthcare data workflows
- Ability to build and evaluate ML/DL models for diagnosis and prediction
- Skills to handle medical datasets, imaging data, and time-series data
- Understanding of responsible AI practices and regulatory compliance
- Hands-on experience through mini-projects and a capstone project

Curriculum:

1. **Introduction to AI & Healthcare** – Overview of AI, ML, DL, and their applications in diagnosis, drug discovery, and telemedicine.
2. **Python for Healthcare AI** – Learn Python basics and libraries (NumPy, Pandas, Matplotlib) using healthcare datasets.
3. **Data Preprocessing & EDA** – Clean, normalize, and visualize patient and hospital data for meaningful insights.
4. **Statistics & Probability** – Understand distributions, hypothesis testing, and statistical significance in medical data.
5. **Machine Learning Fundamentals** – Build models using Linear/Logistic Regression, KNN, and predict patient outcomes.
6. **Deep Learning Basics** – Learn neural networks and create a disease classification model with TensorFlow/Keras.
7. **Medical Imaging with AI** – Apply CNNs to analyze X-rays/MRIs for detecting diseases like pneumonia.
8. **Predictive Healthcare Models** – Work with time-series data (ECG, glucose levels) and forecast patient vitals.

Project Work