

AI BASED DIABETES PREDICTION SYSTEM

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ABSTRACT

THIS PAPER PRESENTS AN INNOVATIVE APPROACH TO THE DEVELOPMENT OF AN AI-BASED DIABETES PREDICTION SYSTEM, LEVERAGING DEEP LEARNING AND MACHINE LEARNING ALGORITHMS

THE SYSTEM COMBINES MULTIMODAL DATA FUSION, INCLUDING ELECTRONIC HEALTH RECORDS, WEARABLE DEVICE DATA, GENOMICS, AND SOCIAL DETERMINANTS OF HEALTH, TO PROVIDE A COMPREHENSIVE ASSESSMENT OF AN INDIVIDUAL'S DIABETES RISK. RECURRENT NEURAL NETWORKS (RNNs)

PROBLEM STATEMENT

**DEVELOPE AN AI POWERED
DAIBETES PREDICTION
SYSTEM THAT LEVERAGES
MACHINE LEARNING
ALGORITHM TO ANALYZE
MEDICAL DATA**



DATA PREPROCESSING

GATHER A DIVERSE AND COMPREHENSIVE DATASET CONTAINING RELEVANT FEATURES FOR DIABETES PREDICTION. - PREPROCESS THE DATA, WHICH MAY INCLUDE TASKS LIKE NORMALIZATION, HANDLING MISSING VALUES, AND FEATURE ENGINEERING.

ENSEMBLE LEARNING METHODS

USE TECHNIQUES LIKE RANDOM FORESTS, GRADIENT BOOSTING, OR ADABOOST TO CREATE MULTIPLE MODELS USING SUBSETS OF THE DATA. - EACH MODEL IN THE ENSEMBLE FOCUSES ON DIFFERENT ASPECTS AND LEARNS FROM DIFFERENT PARTS OF THE DATA.

DEEP LEARNING ALGORITHM

- **IMPLEMENT A DEEP LEARNING MODEL, PERHAPS A FEEDFORWARD NEURAL NETWORK OR A RECURRENT NEURAL NETWORK (RNN), TO CAPTURE COMPLEX RELATIONSHIPS WITHIN THE DATA.**

CODINGS

```
# IMPORT NECESSARY LIBRARIES IMPORT NUMPY AS  
NP IMPORT PANDAS AS PD IMPORT TENSORFLOW AS  
TF FROM SKLEARN.MODEL_SELECTION IMPORT  
TRAIN_TEST_SPLIT FROM SKLEARN.PREPROCESSING  
IMPORT STANDARDScaler FROM  
SKLEARN.ENSEMBLE IMPORT  
RANDOMForestClassifier FROM  
SKLEARN.METRICS IMPORT ACCURACY_SCORE,  
CLASSIFICATION_REPORT FROM  
SKLEARN.DATASETS IMPORT LOAD_DIABETES #  
LOAD DIABETES DATASET (YOU MAY USE YOUR  
DATASET) DIABETES = LOAD_DIABETES() X, y =  
DIABETES.DATA, DIABETES.TARGET # SPLIT DATA  
INTO TRAINING AND TESTING SETS X_TRAIN,  
X_TEST, Y_TRAIN, Y_TEST = TRAIN_TEST_SPLIT(X, y,  
TEST_SIZE=0.2, RANDOM_STATE=42)
```

THANKS!