NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2024-2025

Batch Number	**BG11**
Team Members	Kolipaka Bhavana (21471A0576) Gude Chaitanya (21471A0588) Madagunda Sravani (21471A05C4)
Guide	T.G.Ramnadh Babu M.Tech
Title	Feature Augmentation and Convolutional Neural Networks for Accurate prediction of Heart Disease
Domain/Technology	DEEP LEARNING
Base Paper Link	https://github.com/Kolipaka-Bhavana/base Paper/blob/main/springer%20final.pdf
Dataset Link	https://www.kaggle.com/ fedesoriano/heart failure-prediction
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 7 Server or later Python (COLAB)
Hardware Requirements	SystemType: Intel Core i5 or above RAM: 8 GB Number of cores:5 Number of Threads: 4
Abstract	Heart diseases are considered the foremost cause of death within developing nations; therefore, prediction of heart disease is crucial for evaluating the risk of patients. This paper will introduce a new method to enhance prediction accuracy by combining CNNs with SAE for feature enhancement. Our method uses a data set of 918 patient records with 11 clinical variables, and it removes the drawback of traditional classifiers by using feature augmentation to build more informative features. Experimental results show that our model's accuracy is 93.478%, an improvement over traditional classifiers like MLP and RF by 4.98%. Latent space size is also optimized, and 100 best features are obtained. The results suggest that the deep learning methods, especially the combination of SAE with CNN, bring in notable benefits for heart disease prediction, which might further be used for the clinical purpose of earlier interventions.

Signature of the student(s) **Signature of the Guide** **Signature of the project coordinator**