



NARASARAOPETA ENGINEERING COLLEGE AUTONOMOUS
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Batch Number	BG11
Team Members	Sk.Nazeema(22471A05D3) P.Akhila(22471A95B4) D.Sandhya(22471A0586)
Guide	T.Sai Sarnya MTech
Title	Stroke Prediction Using Deep Learning and Transfer Learning Approaches
Domain/Technology	Deep Learning
Base Paper Link	https://ieeexplore.ieee.org/document/10599507
Dataset Link	https://www.kaggle.com/datasets/shashwatwork/cerebral-stroke-prediction-imbalanced-dataset https://www.kaggle.com/datasets/omnamahshivai/surgical-dataset-binary-classification
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 7 Server or later Python (COLAB)
Hardware Requirements	System Type: Intel Core i5 or above RAM: 8 GB Number of cores:5 Number of Threads: 4
Abstract	In this study, we propose a deep learning-based stroke prediction framework utilizing Convolutional Neural Networks (CNN), Long Short-Term Memory networks (LSTM), and a hybrid CNN-LSTM model. To address the significant class imbalance between stroke and non-stroke cases, oversampling techniques such as SMOTE and ADASYN were applied. Furthermore, transfer learning using pretrained models was integrated to enhance feature extraction and prediction performance. Experimental results demonstrate that the hybrid CNN-LSTM model achieved the highest accuracy of 96% , with a notable reduction in both false positive and false negative rates. These findings highlight the potential of deep learning and transfer learning in improving stroke risk prediction and supporting clinical decision-making.

Signature of the student(s)

Signature of the Guide

Signature of the project coordinator