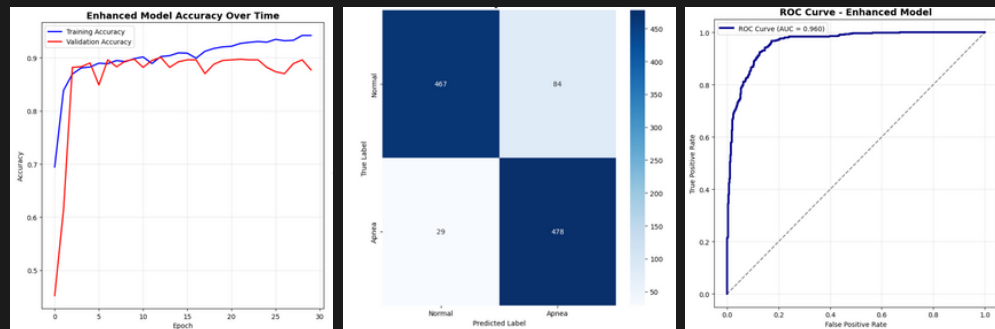


## OBJECTIVE'S

- Develop a high-accuracy model for sleep apnea detection using ECG signals
- Utilize the PhysioNet Apnea-ECG database for model training and validation
- Implement advanced preprocessing and feature extraction techniques
- Compare various deep learning architectures and ensemble methods

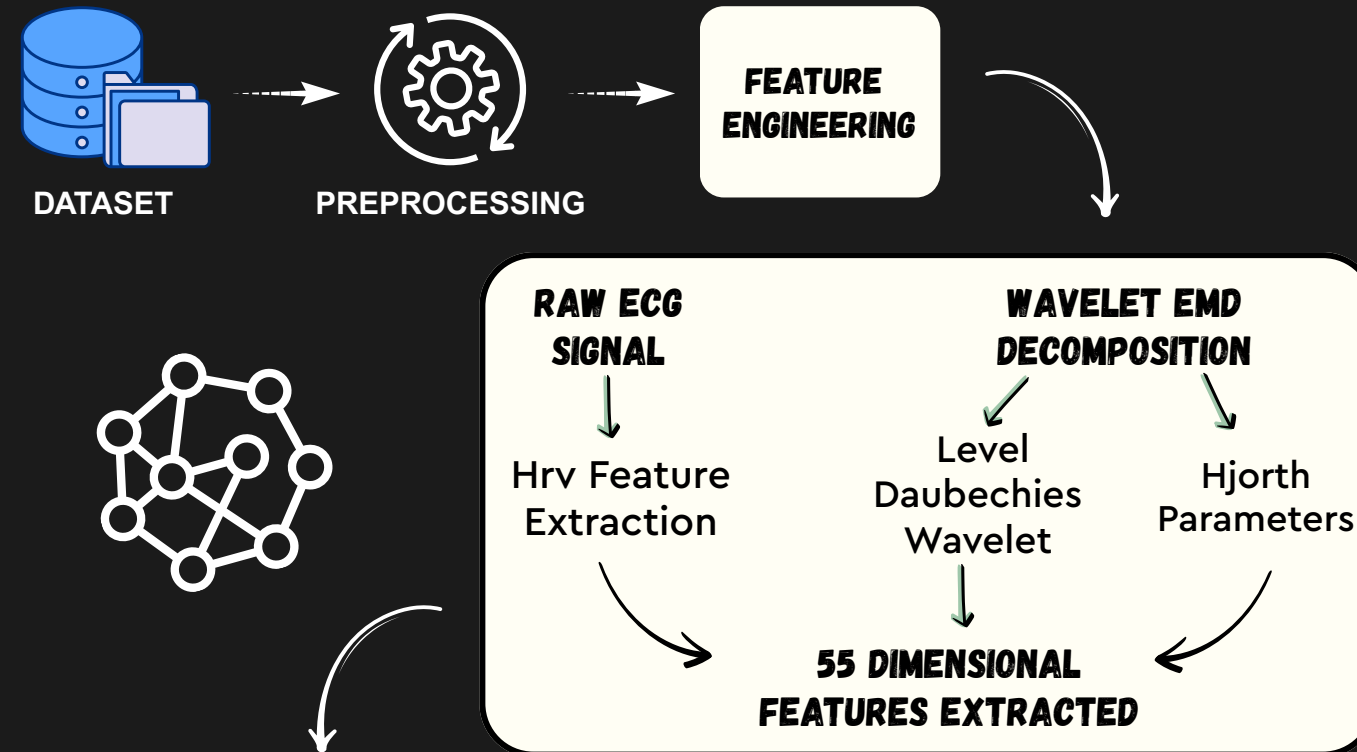
## Result Visualisation:



## TOOLS & TECHNOLOGIES USED

- **Framework:** TensorFlow/Keras with GPU acceleration
- **Tools:** Python ecosystem (NumPy, scikit-learn, PyWavelets)
- **Deployment:** Google Colab with drive integration

## PROPOSED METHODOLOGY:



Model	Accuracy	AUC	Sensitivity	Specificity	Parameters
LSTM	61.5%	0.6800	58.0%	65.0%	~50K
BiLSTM	63.3%	0.7100	60.0%	66.5%	~100K
CNN-LSTM	90.55%	0.9724	94.00%	88.00%	195K
CNN-Transformer-LSTM	89.70%	0.9700	94.48%	85.30%	229K
CNN-BiLSTM-Transformer	90.67%	0.9724	96.30%	88.00%	524K



Dr. Jyoti Maggu



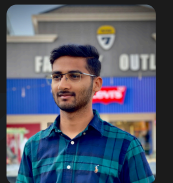
Dr. Simranjit Kaur



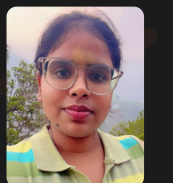
Nikhil Sagar



Balkaran Singh



Armaan Garg



Anshika Saxena