# ARIA
APPLIED RESEARCH IN ACTION

Early Septic Shock Detection Using Vital Signs Forecasting and Classification

Utilizing deep learning, we predict vital signs and employ self-supervised methods to detect sepsis and septic shock in time series data.

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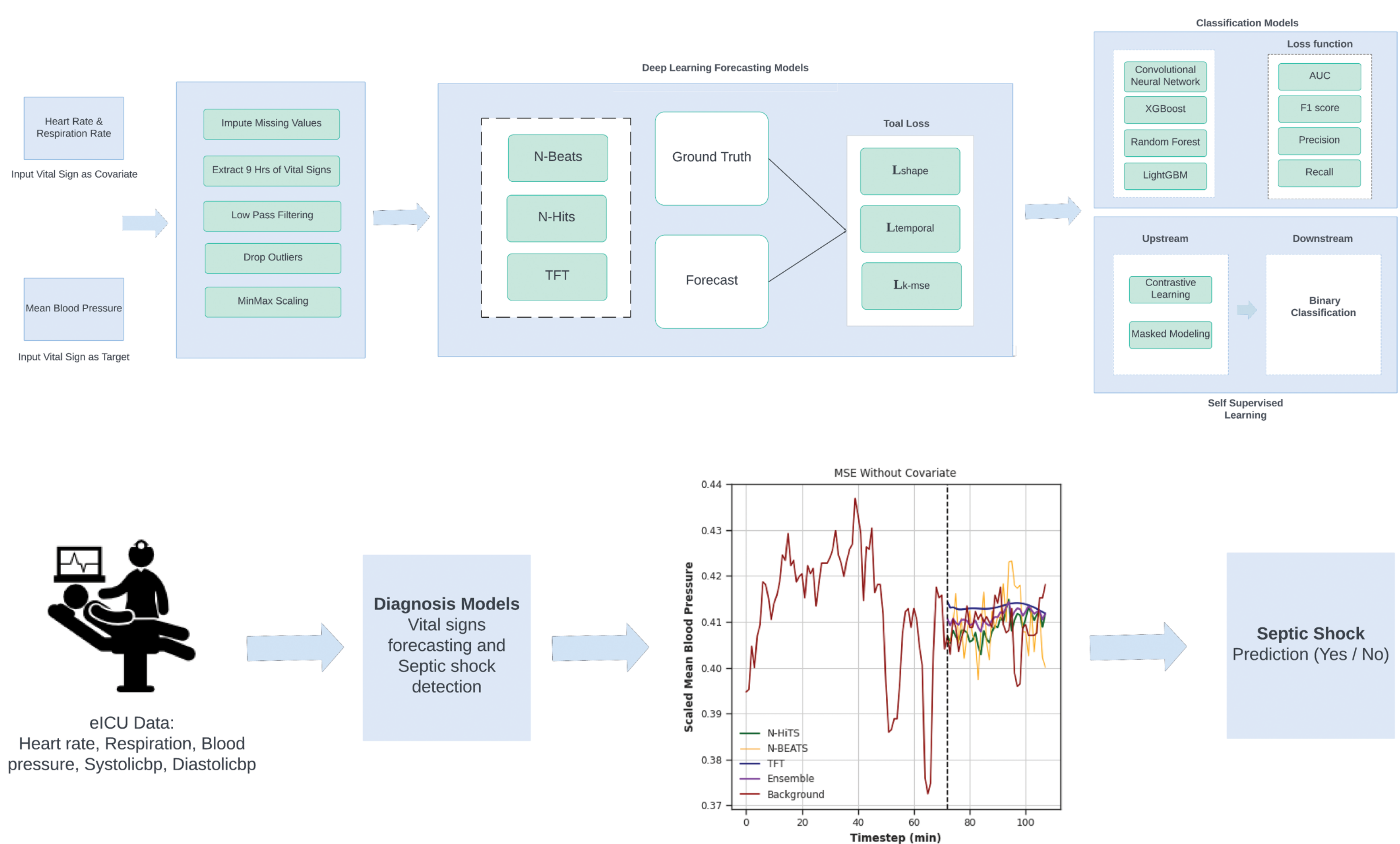
PROJECT SUMMARY

Our work evaluates the effectiveness of cutting-edge deep learning-based forecasting models classification models on analyzing vital sign time series data extracted from the eICU Collaborative Research Database. The primary aim is to construct a machine learning classification pipeline capable of predicting septic shock occurrence within a 9-hour time window, enabling medical professionals to proactively respond to changes in a patient's condition. The eICU dataset encompasses essential metrics such as heart rate, mean blood pressure, and respiration, sampled at five-minute intervals. Our investigation underscores the potential of utilizing time series forecasting and classification techniques for septic shock prediction. We also outline potential avenues for enhancing model performance, encompassing the exploration of diverse optimization methods and innovative ensemble methods. By applying these findings, the assessment of these models using vital sign time series data has the potential to enhance patient care within clinical environments, providing healthcare providers with precise predictions of septic shock.

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