



Github

Classification of Hemorrhagic Shock in a Porcine Model

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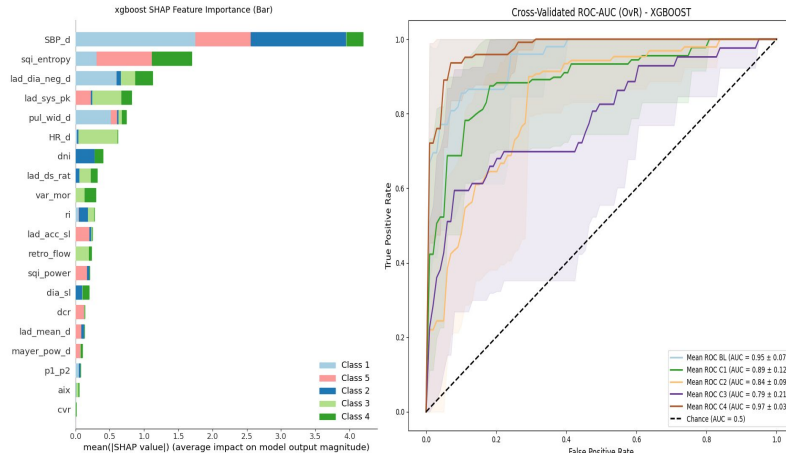
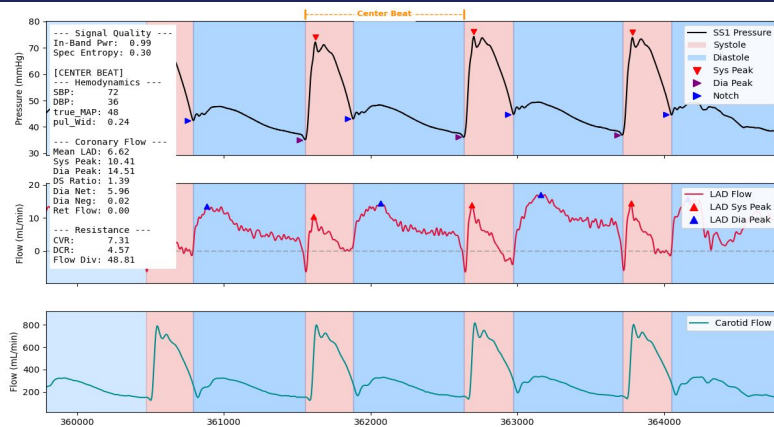
MICOR
Data Team



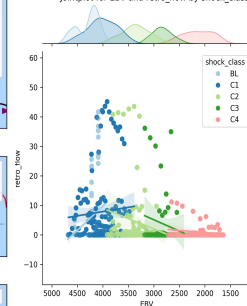
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Overview

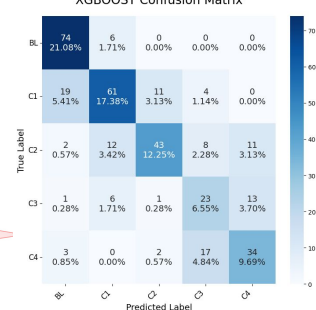
Hemorrhagic shock (HS) remains a preventable cause of death, with casualties deteriorating before surgical control despite point-of-injury care. Stable signal evaluation and machine learning provide additional insight as to the mechanisms driving HS.



Jointplot for EBV and retro_flow by shock_class



XGBOOST Confusion Matrix



Results

The results of this experiment show there are explainable paths to classification of Hemorrhagic Shock. The next phase of this research is to perform further experiments and increase N size to examine a larger subject cohort with the addition of simulated Windkessel model inputs.

ML Model	Balanced Accuracy	Precision	Recall	F1
KNN	42.5% +/-12.77%	0.39	0.39	0.38
SVM	46.4% +/-20.89%	0.46	0.43	0.43
Random Forest	66.9% +/-18.51%	0.59	0.61	0.60
Ensemble	68.6% +/-17.72%	0.62	0.63	0.62
XGBoost	71.9% +/-17.48%	0.65	0.65	0.65