DUHS Inpatient General Decompensation Prediction

Ziyuan Shen, Mengxuan Cui

Background & Significance

Data Preparation

Feature Engineering & Modeling

Experimental Results

Conclusion

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Baseline Model: National Early Warning Score

Table: NEWS scoring criteria as a aggregate weighted system[9].

Score	3	2	1	0	1	2	3
Respiration Rate	≤ 8		9-11	12-20		21-24	≥ 35
Oxygen Saturations	≤ 91	92-93	94-95	≥ 96			
Supplemental Oxygen		Yes		No			
Systolic BP	≤ 90	91-100	101-110	111-219			≥ 220
Heart Rate	≤ 40		41-45	51-90	91-110	111-130	≥ 131
Temperature	≤ 35		35-36	36-38	38-39	≥ 39	
Level of Consciousness				A			V,P,U

[9] Ariel L Shiloh et al. "Early warning/track-and-trigger systems to detect deterioration and improve outcomes in hospitalized patients". In: *Seminars in respiratory and critical care medicine*. Vol. 37. 01. Thieme Medical Publishers. 2016, pp. 088–095.
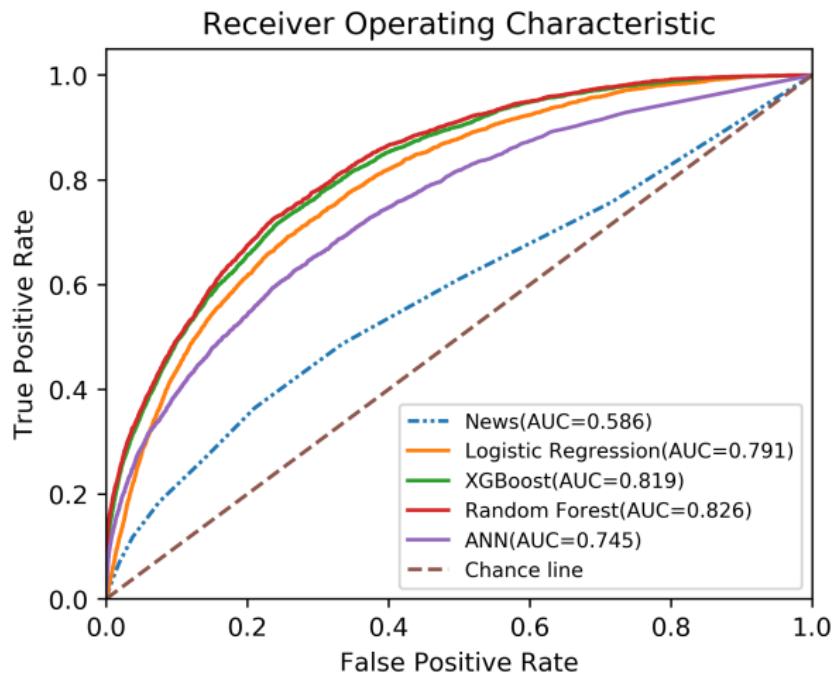
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ROC

Receiver Operating Characteristic

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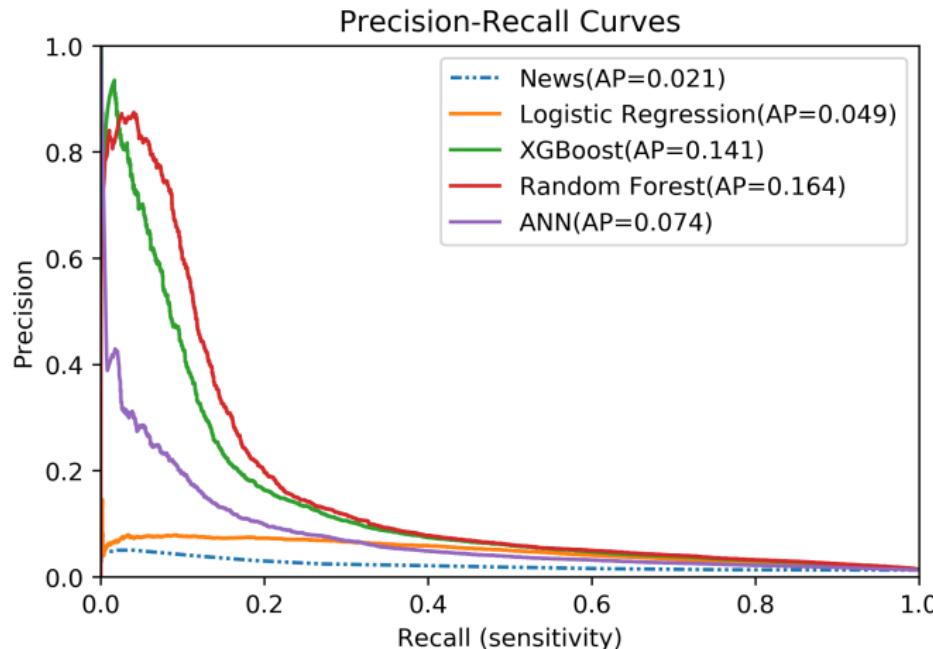
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Precision-Recall

Precision-Recall Curves

Legend:
- News(AP=0.021)
- Logistic Regression(AP=0.049)
- XGBoost(AP=0.141)
- Random Forest(AP=0.164)
- ANN(AP=0.074)

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Score Comparison

Model Scores Comparison