

Hospital Staffing Shortage Predictor

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Problem Statement

How can we predict and prepare for times when hospitals might not have enough workers, using COVID-19 data?

Solution

Employ different machine learning models to to determine an accurate staffing estimate by analyzing data from previous days

Recap

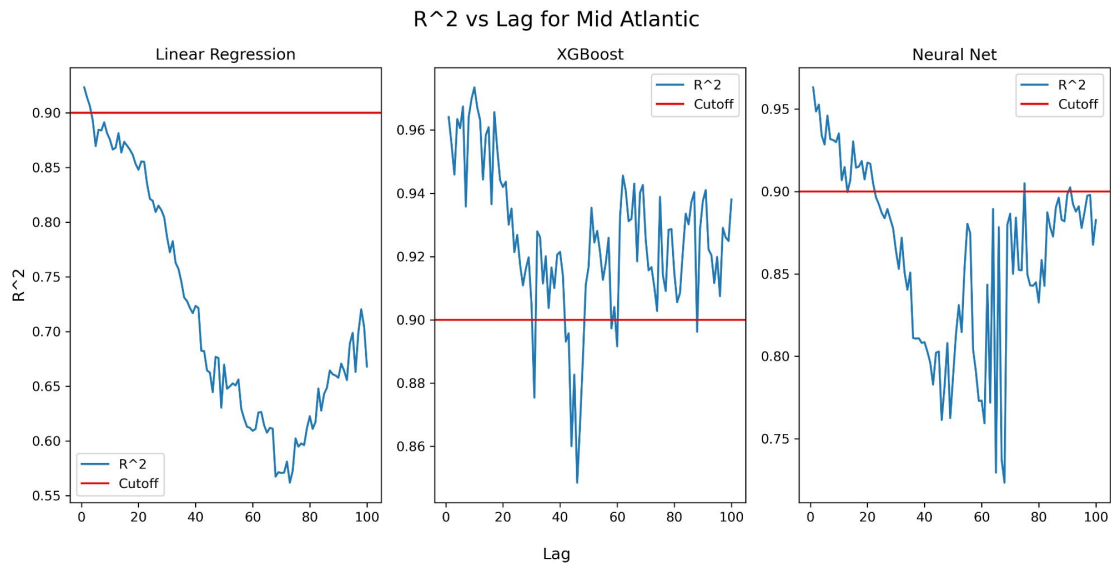
- Healthdata.gov
- ~80,000 rows, 135 columns
 - Critical staffing shortages
 - Bed utilization
 - Demographics
 - Medications

1. Drop pediatric data
2. Impute missing values using forward and backward fill
3. Group into regions
4. Lasso regression on scaled data to get features per region

- Computed lagged data frames ranging from 1 lag to 100 lags
- Dropped intermediate lags
- Ran regression on each lag

Key Insights

- For more interpretable models (Linear Regression), increasing lags leads to worse predictability
- Black box models can predict staffing shortages at higher lags



Demo