

# Prediction Intervals for the Area Under the ROC Curve

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# Introduction

# Predicting Performance of Classification Models

- ▶ **What:** Method for calculating a prediction interval for the Area Under the ROC curve (AUROC)
  - ▶ Area under the Receiver Operating Characteristic (ROC) curve is a measure of quality of a signal for a message
  - ▶ In predictive modeling, it is often used as a measure of performance of a classification model
- ▶ **Why:** Characterize the likely range of model performance when model is used for prediction
  - ▶ In practice, businesses will use model until:
    - ▶ Performance (AUROC) degrades
    - ▶ Population changes
- ▶ **How:** Measure the variation in AUROC in terms of the variation in the underlying distribution of predictive variables
  - ▶ Not only from sampling variation from a fixed distribution