# Introduction

This report provides an analysis of various ML models and their performance metrics. For regression models, it includes evaluation metrics such as MSE, MAE, RMSE, and R2, along with residual plots, actual vs predicted plots, and SHAP plots (summary bar and beeswarm). Additionally, an overall performance chart compares metrics across multiple regression models.

Classification Section

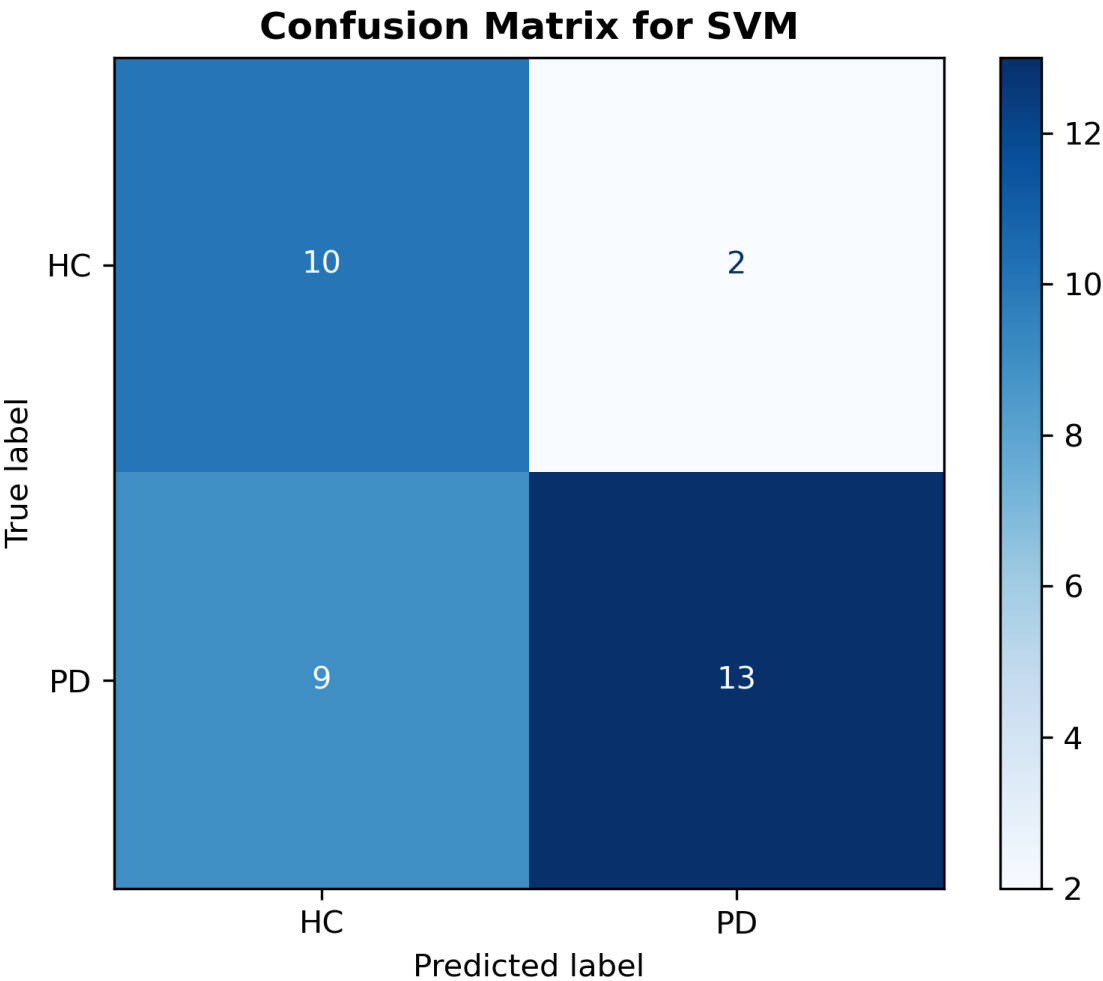## Overall ROC Curves for All Classification Models

This plot shows the ROC curves for all classification models.
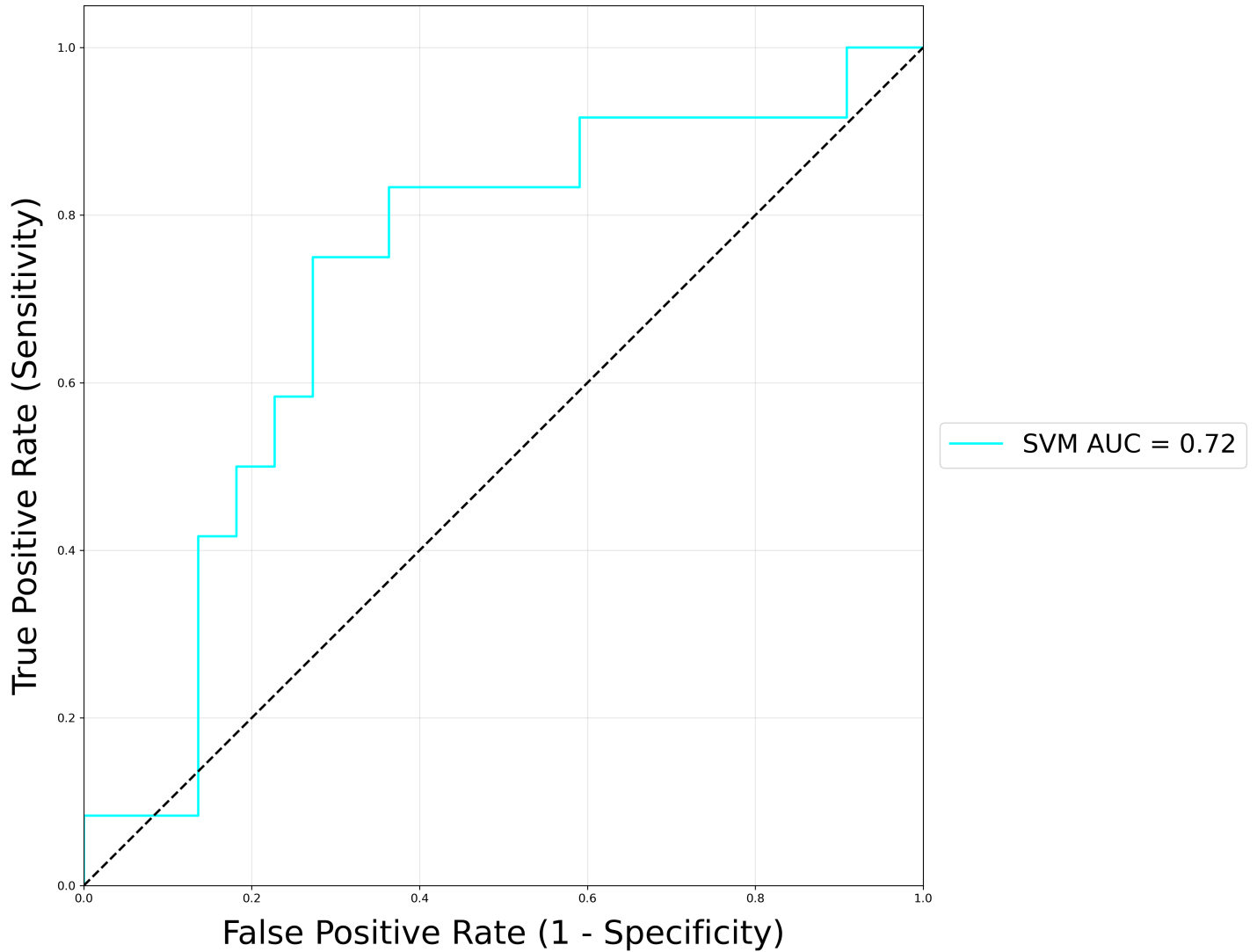
Svm Confusion Matrix

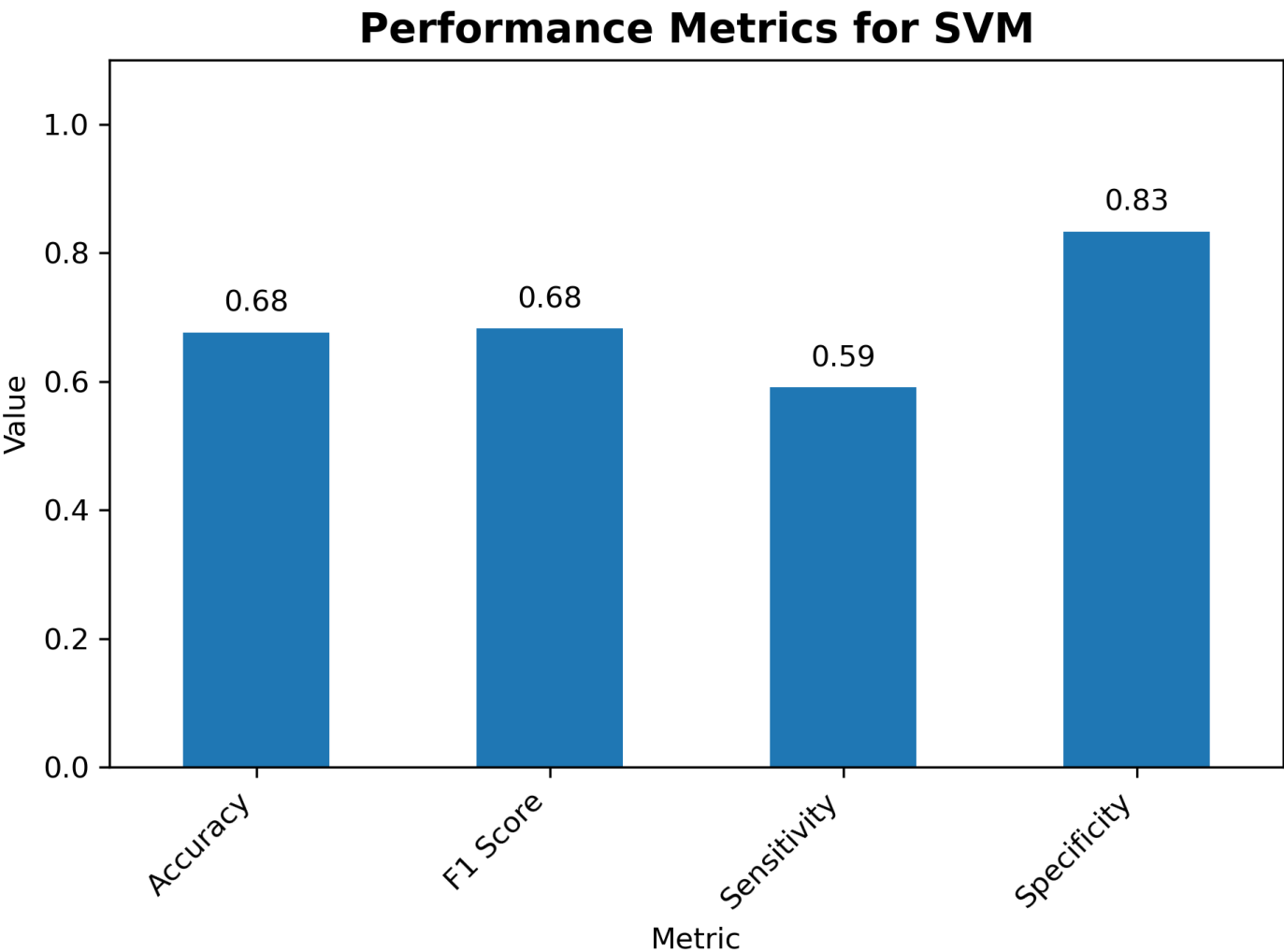Support Vector Machine (SVM) model performance analysis.

Confusion Matrix for SVM

Svm Evaluation Metrics

Support Vector Machine (SVM) model performance analysis.

Performance Metrics for SVM

Svm ROC Curve
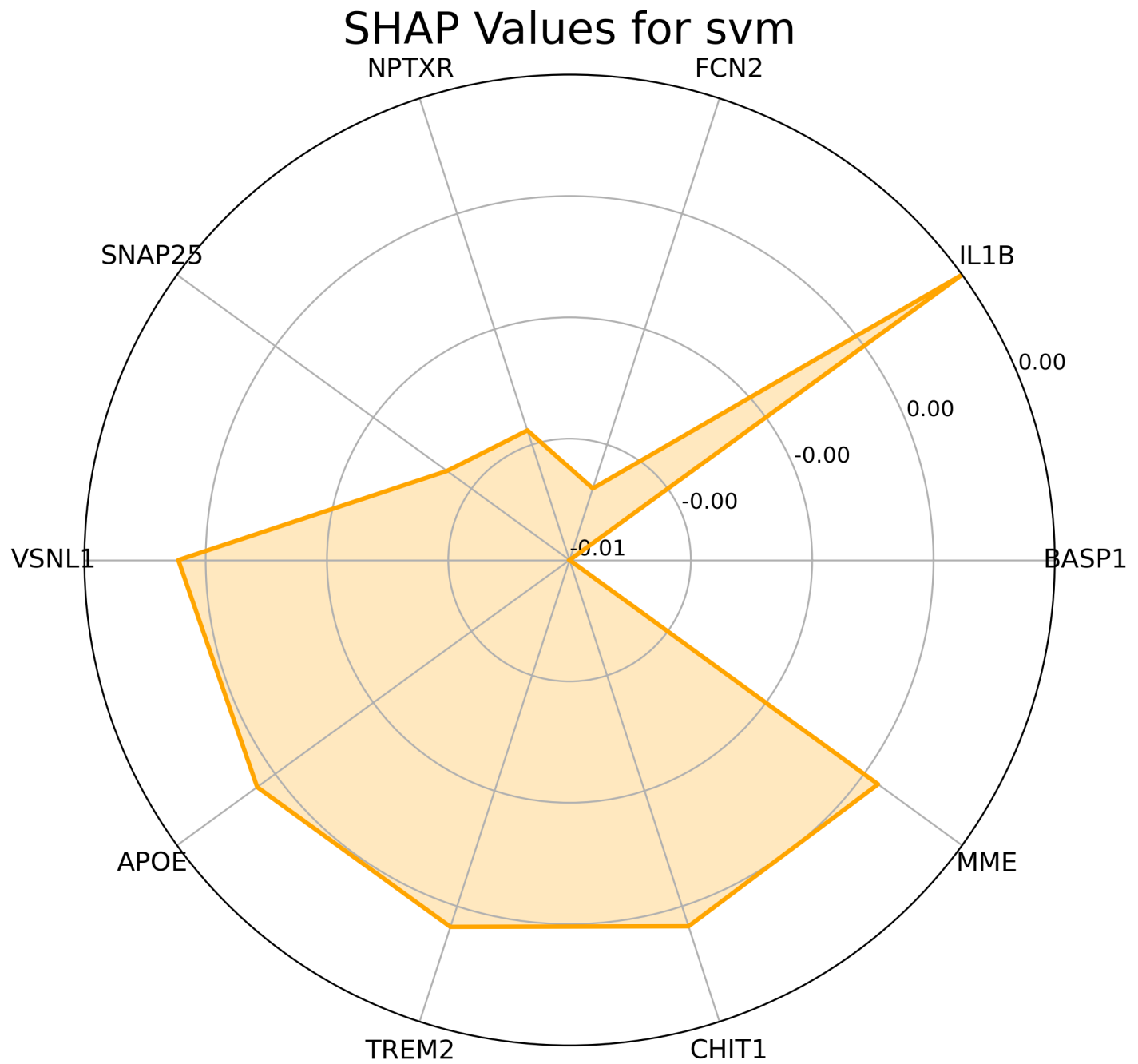
Support Vector Machine (SVM) model performance analysis.
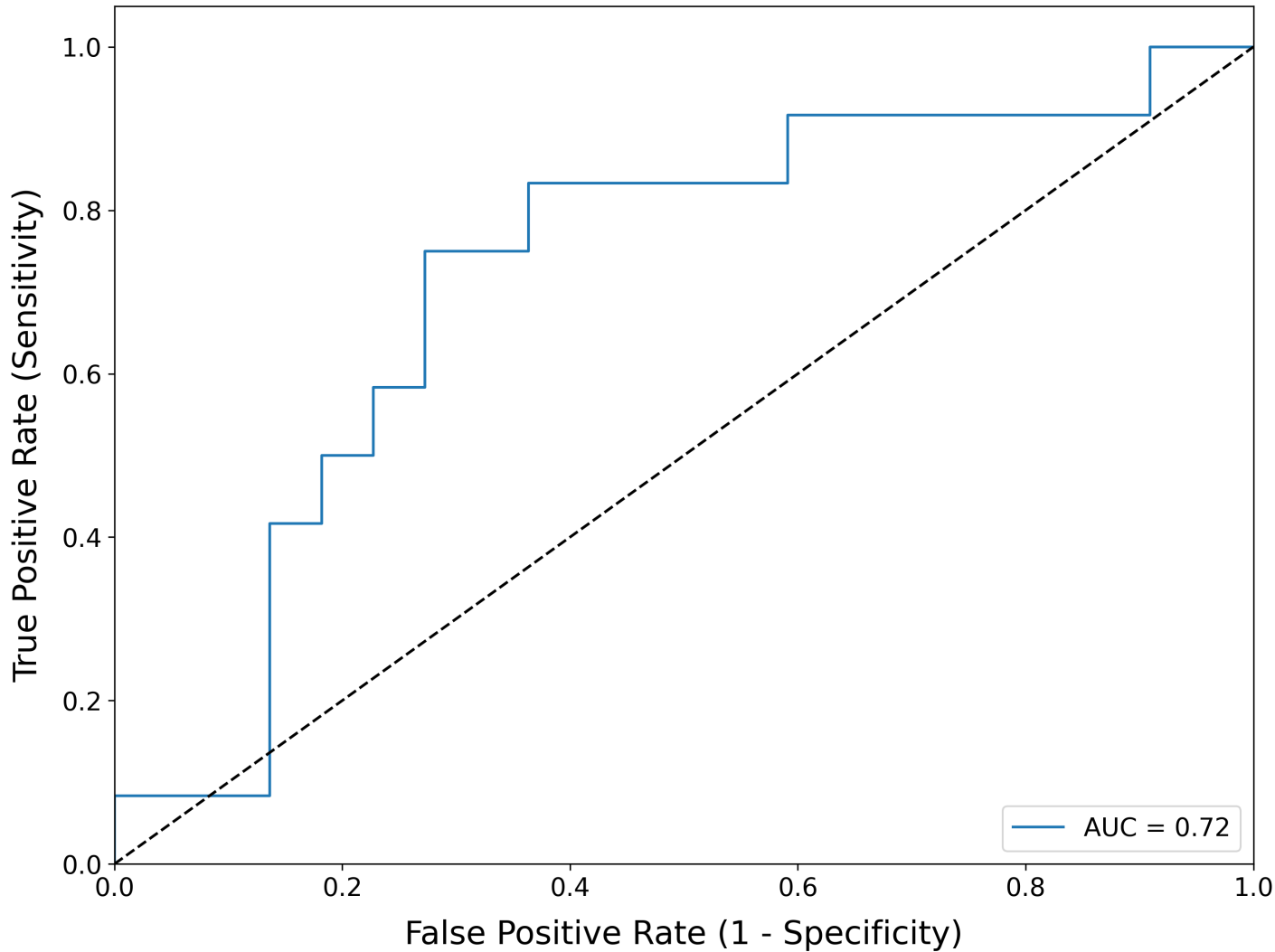
Svm Feature Importance - SHAP Radar Plot

Support Vector Machine (SVM) model performance analysis.

SHAP Values for svm

Svm Feature Importance - SHAP Bar Plot for Multiclass

Support Vector Machine (SVM) model performance analysis.

SHAP Values Bar Chart for svm
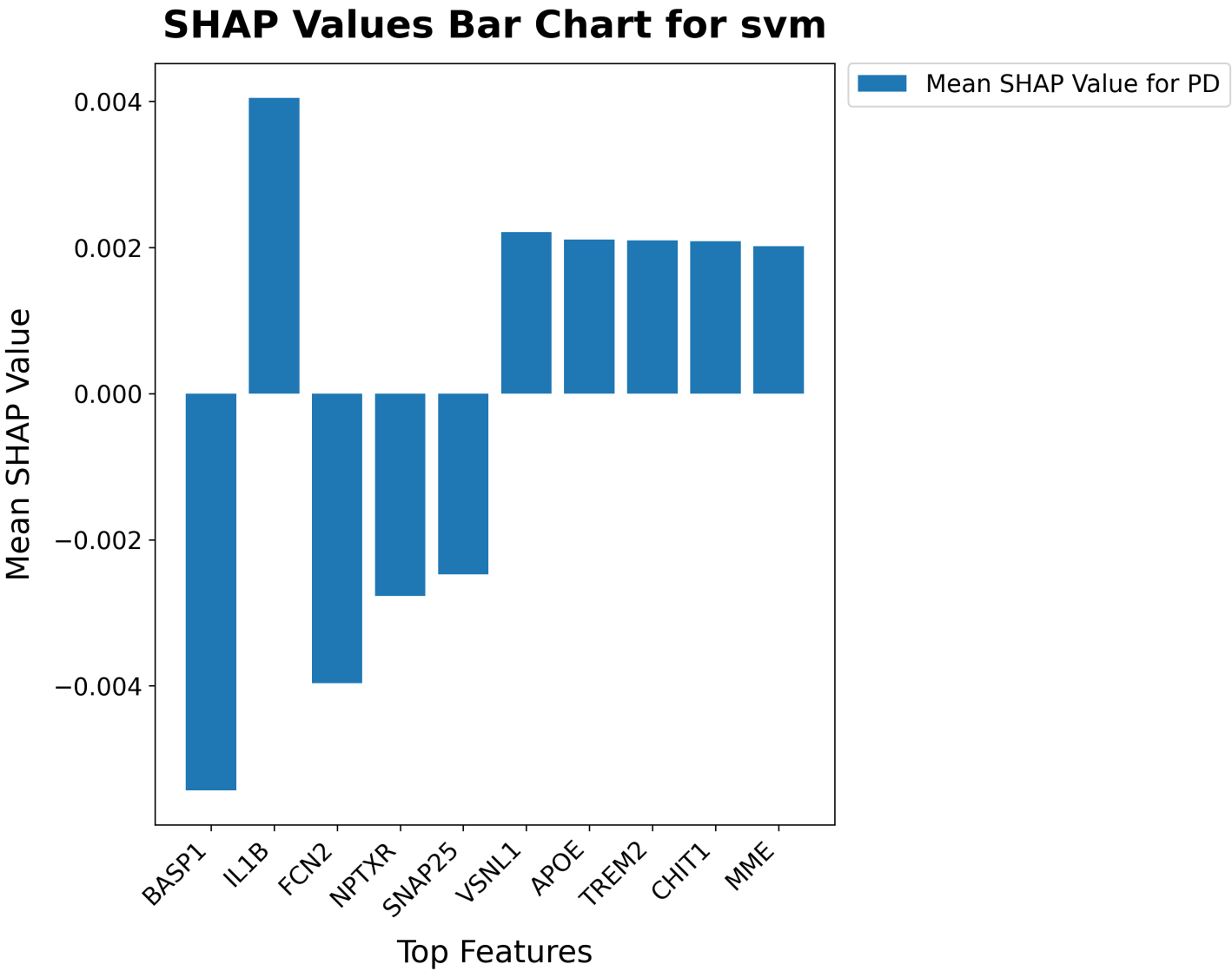
Svm Five-Fold Classification Results

Support Vector Machine (SVM) model performance analysis.

F1 and AUC Scores per Outer Fold