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**Andre K Waschka\*** ([akwaschka@berkeley.edu](mailto:akwaschka@berkeley.edu)). *A cross-validated tuning parameter estimator for decision trees*. Preliminary report.

The augmented tree-based method presented here is a procedure that uses cross-validated, variance-bias trade-off to choose the most refined level of stratification in order to minimize misclassification rates, by incorporating differential impacts for a false positive (FP) versus false negative (FN) rates. The new tree-based estimator is characterized by a tuning parameter, which is a loss matrix composed of user-supplied weights (FP; FN). Our optimized CV method directly optimizes the weighted FP to FN ratio while capitalizing on the properties of cross-validation to limit the risk of overfitting. This yields an estimator that minimizes the cross-validated risk estimates.

Clinical applications of this approach suggest this method has great promise as a statistical tool for precision medicine. (Received September 26, 2017)