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An analytical toast to wine: using stacked generalization to predict wine preference. (English)
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Summary: Due to the intricacies surrounding taste profiles, one’s view of good wine is subjective. Therefore, it is advantageous to provide a more objective, data-driven way to assess wine preferences. Motivated by a previous study that modeled wine preferences using machine learning algorithms, this work presents an ensemble approach to predict a wine sample’s quality level given its physiochemical properties. Results show the proposed framework out-performs many sophisticated models including the one recommended by the motivational study. Moreover, the proposed framework offers a simple variable importance strategy to gain insight as to the relevance of the predictor variables and is applied to both simulated and real data. Given the predictive power of using ensembles, especially when they can be interpretable, practitioners can use the following approach to provide an accurate and inferential perspective towards demystifying wine preferences.

MSC:
62-XX Statistics
68-XX Computer science

Keywords:
Bayesian modeling; ensemble modeling; machine learning; regularization; stacked generalization; variable importance; wine quality

Software:
R; EBglmnet; UCI-ml; Kernlab; caret; MetaFraud

Full Text: DOI

References:


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