Understanding Parameters Affecting the Accuracy of Machine Learning Algorithms[1] JOHN STEWART, West Virginia University — Machine learning algorithms represent an exciting new class of quantitative methods to understand physics classes and students. Recent work has applied these algorithms to understand physics major retention to degree and the risk factors influencing success in introductory physics. This talk will explore some of the requirements of successfully applying these algorithms including required sample sizes, optimal test/training dataset sizes, and review various methods of characterizing the quality of the models produced. We will also explore the issues of unbalanced independent and dependent variables and the requirements for the accurate use of categorical variables.

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