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**James T Snyder\*** (jamestsnyder@att.net) and **John David**. *Machine Learning in NBA and NCAA Basketball*. Preliminary report.

In this paper we explore the ability of machine learning based mathematical models to make predictions of outcomes of National Basketball Association (NBA) and NCAA basketball games. We use statistics from the 2004-2005 season up to and including the 2008-2009 season to evaluate the predictive capabilities of our models. We implement machine learning techniques to build models in order to make predictions on the score differential between two teams in a given game. Ensembles of Artificial Neural Networks (ANNs) and Decision Trees (DTs) are built based on data from two previous seasons and then used to predict the next season. The average accuracy over all predictions from 2006-2009 was 70.9% for the NBA and 76.5% for the NCAA with mean errors of 8.9 points per game and 8.1 points per game, respectively. We suggest various hypotheses for why the model is able to predict NCAA games with higher accuracy and less error. Further, we perform a model analysis where we examine the importance that each model places on the input statistics and compare the results. (Received September 17, 2013)