1145-VN-2588 **Michael Natole Jr.*** (mnatole@albany.edu), **Yiming Ying** and **Siwei Lyu**. *Fast Algorithms for AUC Maximization.*

Quantifying machine learning performance is an important issue to consider when designing learning algorithms for binary classification. Most algorithms maximize accuracy, however, this can be a misleading performance metric when the data is imbalanced. In this talk, we will give a general overview of other metrics to measure performance and then discuss the Receiver Operating Characteristic (ROC) Curve and the AUC score. We will then introduce two novel algorithms that I have developed for optimizing the AUC score: stochastic proximal AUC maximization (SPAM) and stochastic primal-dual AUC maximization (SPDAM). I will briefly discuss the $O(\log t/t)$ convergence rate for SPAM and the linear convergence rate for SPDAM. I will also validate the effectiveness of both algorithms on various data sets. (Received September 25, 2018)