Machine Learning for Everyone: Overview of Modules

The Machine Learning for Everyone project has developed learning modules to provide access to the tools and techniques associated with machine learning to a broad category of undergraduate students. The changing nature of science and its reliance on massive amounts of data has led to the integral use of machine learning approaches in just about every discipline. Recognizing this shift, flexible teaching materials have been developed to provide educators and students in a wide variety of academic fields with relevant machine learning topics and discipline-ready activities. This project is funded in part by NSF DUE award 1141033.

Project Goals
1. Devise a module structure for effectively packaging and presenting materials for teaching machine learning to undergraduates, particularly non-computing majors
2. Produce stand-alone modules that can be adapted for relevant learning experiences for students in a variety of fields, and
3. Disseminate the knowledge gained about module development and propagation to the wider computing education community.

Modules
- Introduction and Background
    - Introduction to Machine Learning
    - Kinds of Machine Learning
    - Choosing Inputs
    - Introduction to Classification and Clustering
    - Text Classification using WEKA
- Supervised Methods
    - Evaluating Classifiers
    - Decision Trees
    - Neural Networks
    - Support Vector Machines (SVMs)
    - Naive Bayes
- Unsupervised Methods
    - Dimensionality Reduction
    - K Means Clustering