

This master thesis focuses on the Random Forests algorithm analysis and implementation. The Random Forests is a machine learning algorithm targeting data classification. The goal of the thesis is an implementation of the Random Forests algorithm using techniques and technologies of parallel programming for CPU and GPGPU and also a reference serial implementation for CPU. A comparison and evaluation of functional and performance attributes of these implementations will be performed. For the comparison of these implementations various data sets will be used but an emphasis will be given to real world data obtained from astronomical observations of stellar spectra. Usefulness of these implementations for stellar spectra classification from the functional and performance view will be performed.