PROJECT TITLE: Applications of Machine Learning in High Energy Physics

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Project Description

The student will work with a cross-disciplinary team of experimental high energy physicists and computer scientists that is developing machine learning algorithms for the LHCb experiment at CERN:  
• to replace the most computationally expensive parts of the event pattern recognition algorithms;  
• to increase the performance of the event-classification algorithms; and  
• to reduce the number of bytes persisted per event without degrading the physics performance.

The student should have significant Python programming experience, be comfortable with multidimensional calculus, and have some college-level experience with probability and statistics. Knowledge of physics at the level of the freshmen-level calculus-based course will be useful, but is not necessary.