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A Multi-band Extension of the Analysis of Variance Period Finding Algorithm[1] NICHOLAS MONDRIK, JENNIFER MARSHALL, JAMES LONG, Texas A&M University — One of the largest challenges facing modern astronomical surveys is the automated classification of sources. In the case of variable stars, periods are among the most useful features for classification algorithms. In surveys such as the Dark Energy Survey, which cover a large area of the sky with relatively few visits, single band period finding algorithms can struggle due to poor phase coverage in any one band. However, these single band algorithms throw away data in the form of other bands that can potentially hold more information about the period of the variable source. We present here an extension of a single band period finding algorithm to include information about the period contained in other bands. We generate light curves of RR Lyrae stars in 5 bands and compare the performance of the multi-band algorithm to its single band implementation. By including these extra bands we show improved performance for poorly sampled light curves over long baselines in simulated data.

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