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Abstract

VASCO: Developing AI-Crawlers for ML-Blink

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The "Vanishing and Appearing Sources during a Century of Observations" (VASCO) initiative aims at finding inexplicable effects among all-sky surveys. The VASCO project is a collaboration between astronomers and information technology researchers, and incorporates explicitly a component of citizen science. In an effort to efficiently mine the historical sky survey observations, an implementation of the ML-Blink algorithm - a machine learning algorithm which uses a data-driven approach to attempt to learn what features characterize interesting candidates - is proposed and evaluated as means to recommend interesting candidates from the historical sky survey observations. The proposed ML-Blink algorithm implementation consistently achieves an area under the curve in the 0.70 range and finds 2-4 artificial anomalies out of 7 in a dataset consisting 5005 observations from the USNO-B1.0 and Pan-STARRS1 datasets.

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