

Abstract Submitted
for the TSF10 Meeting of
The American Physical Society

Classification of simulated LIGO glitches using Fast Time Series Evaluation Algorithm¹ PAPIA RIZWAN, SOMA MUKHERJEE, University of Texas at Brownsville — Longest Common Subsequence (LCSS) has applications in data mining whenever pairwise sequence matching is necessary. However, the process is slow and nonviable when a huge amount of data such as a large set of lengthy time series is involved. Data from the current generation of gravitational wave detectors such as LIGO (Laser Interferometric Gravitational Wave Observatory) contain a large number of spurious signals from instrumental and environmental sources that need to be distinguished from astrophysical gravitational wave signals. LCSS proves to be a useful tool to classify these glitch signals. The main idea of this work is to implement LCSS with Fast Time Series Evaluation (FTSE) algorithm on simulated data to test if the algorithm is more efficient and accurate compared to the general LCSS algorithm. The efficiency of LCSS with FTSE algorithm is compared to that of general LCSS in terms of time complexity. The accuracy is compared in terms of misclassification per number of time series.

¹NSF

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Date submitted: 24 Sep 2010

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