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*New partition algorithms for 1-D event data.* Preliminary report.

This talk is on work done as part of the Center for Applied Mathematics, Computation, and Statistics (CAMCOS) at SJSU. We consider the analysis of 1-D *event data* (i.e., a list of times at which some event, like the detection of a photon, happens). Specifically, we consider the problem of optimally *partitioning* an interval of time over which event data is collected into *blocks* of roughly constant event rate. A previous CAMCOS team developed a provably optimal algorithm to solve this problem that runs in  $O(N^2)$  time.

We present several new algorithms for solving the partitioning problem and variants. Most notably, we describe an algorithm, based on the idea of *local changepoint detection*, that often seems to work significantly faster (on the order of 3–8 times faster) on large data sets than the existing algorithm does, at the cost of a possible loss of accuracy. We also discuss work in progress and future directions. (Received August 03, 2012)