Update on Bayesian Blocks: Segmented Models for Sequential Data

Jeff Scargle

NASA Ames Research Center

Mail Stop 245-3

Moffett Field, CA 94035   USA

jeffrey.d.scargle@nasa.gov

+1 650-604-6330 (office)

Abstract

The Bayesian Block algorithm, in wide use in astronomy and other areas, has been improved in several ways. The model for block shapehas been generalized to include other than constant signal rate -- e,g, linear, exponential, or other parametric models. In addition the computational efficiency has been improved, so that instead of $O(N**2)$ the basic algorithm is $O(N)$ in most cases. Other improvements in the theoryand application of segmented representations will be described.