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Gilad Lerman* (lerman@umn.edu), 127 Vincent Hall, 206 Church St. S.E., Minneapolis, MN 55455, and **Joseph McQuown** and **Bud Mishra**. *Multiscale Strip Constructions*.

We present a fast multiscale algorithm for detecting and characterizing a cloud of points that are concentrated around a curve in a D -dimensional Euclidean space. The algorithm characterizes the cloud data by detecting the underlying curve and separates between a “stable” set around the curve and a “deviating” set (“outliers”) arising due to a different model. As an example we apply the algorithm to high-dimensional data obtained by pixel neighborhoods of various images. Here, the “deviating points” detected by the algorithm correspond to edges in the original image. We will also discuss extensions of the algorithm which deal with more complicated underlying geometric structures and point to more applications. (Received August 16, 2005)