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Robert T. Arn* (arn@math.colostate.edu), **Bruce Draper**, **Michael Kirby** and **Chris Peterson**. *Formulation of Generalized Curvature Values from the Singular Value Decomposition and the use on Human Action Data.*

In examining the local singular value decomposition (LSVD) on a curve in \mathbb{R}^n , we recognize a relationship between the Frenet-Serret Frame and local singular vectors. Expanding on this, we derive equations to compute generalized curvature values at a given point on the curve in terms of the local singular values. We apply this characterization to curves in 75 dimensions generated by the Microsoft Kinect 2 device. In particular, we create a feature vector of generalized curvatures which evolves along the curve. This approach produces a time-series representation of human action data that we propose to apply to segment human actions in an open world environment. (Received September 18, 2015)