1006-62-263 **Anuj Srivastava*** (anuj@stat.fsu.edu), Deaprtment of Statistics, Room 106D, Florida State University, Tallahassee, FL 32306, and **David Kaziska** and **Shantanu Joshi**. *Statistical Analysis of Shapes of Planar Closed Curves.*

Shapes of boundaries can play an important role in characterizing objects in images. We describe an approach for statistical analysis of shapes of closed curves using ideas from differential geometry. A fundamental tool in this shape analysis is the construction and implementation of geodesic paths between shapes. We use geodesic paths to accomplish a variety of tasks, including the definition of a metric to compare shapes, the computation of intrinsic statistics for a set of shapes, and the definition of probability models on shape spaces. We demonstrate this approach using three applications: (i) automated clustering of objects in an image database according to their shapes, (ii) interpolation of heart-wall boundaries in echocardiographic image sequences, and (iii) a study of shapes of human silhouettes in infrared surveillance images. (Received February 16, 2005)