

Hand Silhouette Curvature Measurements as a Biometric Identifier

Damon L. Woodard – Patrick J. Flynn

Department of Computer Science and Engineering

University of Notre Dame Notre Dame, IN 46556

{dwoodard, flynn}@cse.nd.edu

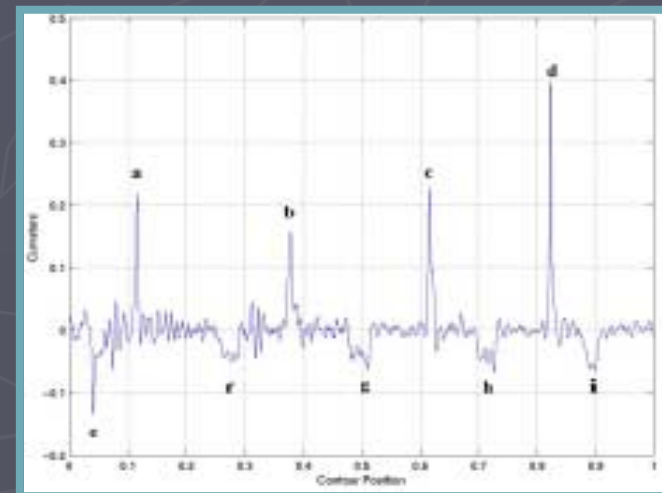
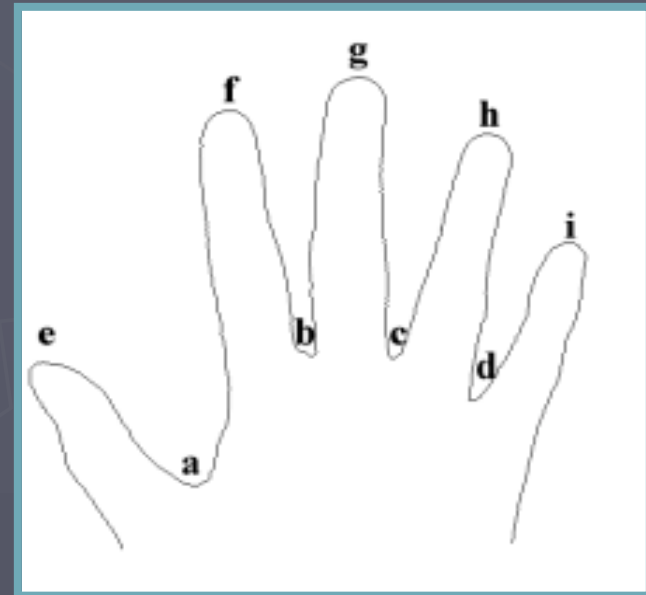
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Motivation

- Improve on performance achieved by traditional hand geometry system used for identity verification
- Address identification problem

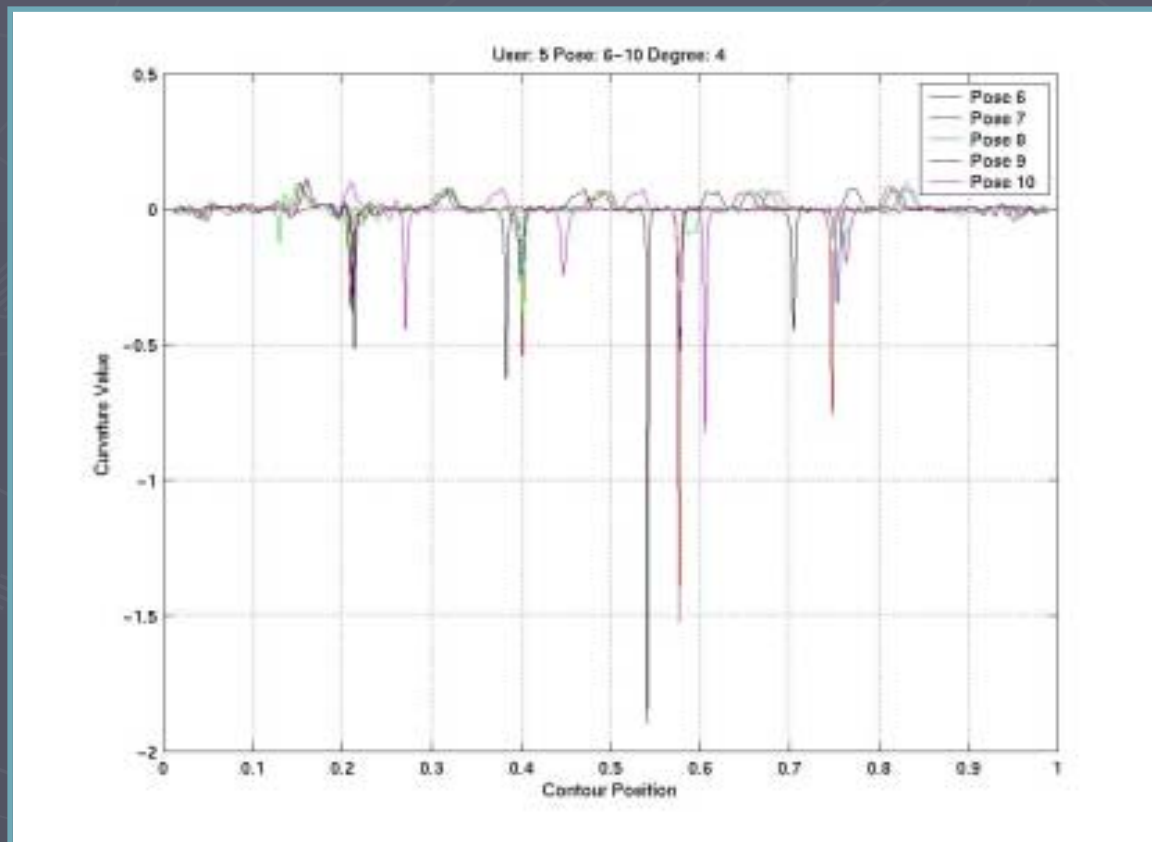
Initial Experiment

- Extracted hand silhouettes from small image dataset
- Computed curvature values at each point on silhouette
- Used correlation coefficient to determine match score
- Varied match threshold



Second Experiment

- Larger data set (460 images)
- Multiple hand/finger positions



Conclusions and New Work

- 2D curvature information remains relatively consistent despite pose changes (variation in peak position with pose change)
- Individual fingers should be extracted from images for curvature based comparison
- Current work: convex hull based segmentation
- Current work: 3D hand surface shape (curvature and landmarks) will be investigated as a biometric identifier.