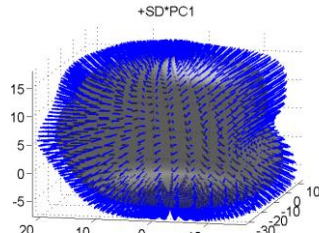
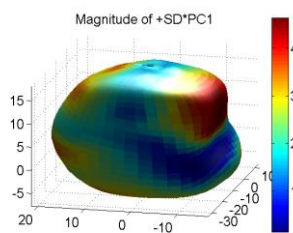
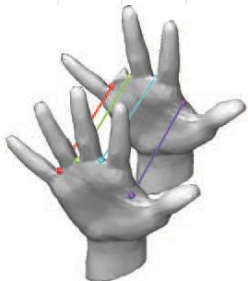
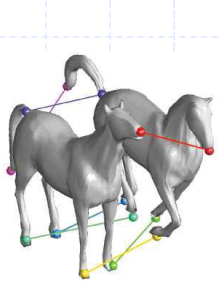


ELASTIC STATISTICAL SHAPE ANALYSIS OF 3D OBJECTS USING SQUARE ROOT NORMAL FIELDS

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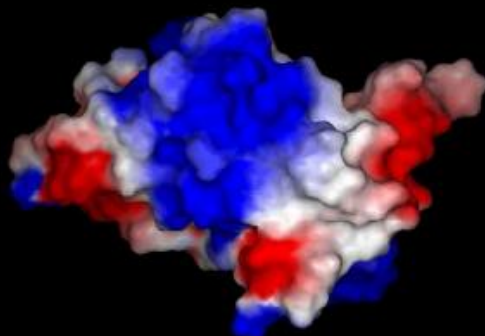
MOTIVATION



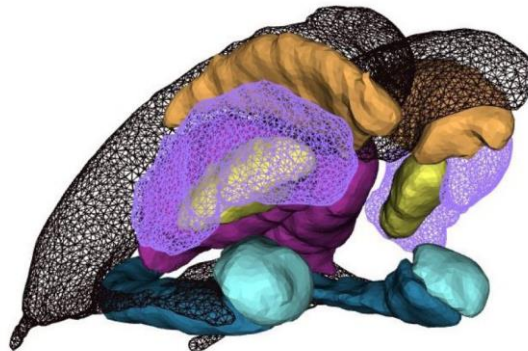
Graphics

Medical Image Registration and Segmentation

Biometrics



Bioinformatics



Medical Diagnosis



Allen et al. (2003)

Human Body Shape

MAIN GOALS

1. Shape Differences: Given two objects, quantify differences between their shapes. We utilize the objects' boundaries, which form parameterized surfaces.

2. Invariance: Shapes are invariant to (a) translation, (b) scaling, (c) rotation and (d) re-parameterization.

3. Shape Statistics: Given a collection of shapes generate summary statistics and study variability using principal component analysis.

4. Stochastic Modeling: Develop models that capture observed variability in shape classes. Validate the models using random sampling.

5. Statistical Inferences: Study classification, clustering, hypothesis testing, likelihood ratios, regression...

