CSc645 — Geometric Matching and Applications to Biology

August 23, 2004

In the seminar we discuss different methods for comparing and matching objects in different geometric settings, with an emphasis on applications to Biology. In particular, we discuss the following subjects (with a temporary list of relevant publications to each subject).

1. Matching sets of points (analytical methods) [CDEK99, CGH+93]
2. Geometric hashing [WR97]
3. Hausdorff distance between surfaces [AHPSW03, KW04]
4. Matching sets of points (approximated methods) [CS98].
5. Curve matching, Frechet distance ([AG95]), Dynamic Time Wrapping and Signature Verification ([MP98]). Applications of Frechet distance to GIS [AERW03].
6. Geometric methods of protein docking [SS02, HMWN02, Len95, GW00, FLWN95]
7. Methods for surface matching — Iterative closest point and variants [TL94, ZHHK04]. The Michelangelo project [LPC+00].
8. Algorithms for Electrophoresis Gel Analysis [EHK+01].
References


