

Geometry Seminar
Tuesday, October 20, 2009
Room 202 WWH at 6:00 P.M.

Object matching under invariances and the Gromov-Hausdorff distance

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The problem of object matching under invariances can be studied using certain tools from Metric Geometry. The main idea is to regard objects as metric spaces (or measure metric spaces). The type of invariance one wishes to have in the matching is encoded in the choice of the metrics with which we endow the objects. The standard example is matching objects in Euclidean space under rigid isometries: in this situation one would endow the objects with the Euclidean metric. More general scenarios are possible in which the desired invariance cannot be reflected by the preservation of an ambient space metric. Several ideas due to M. Gromov are useful for approaching this problem. We discuss different adaptations of these ideas, and in particular, using mass transportation ideas concepts, we construct a certain L^p version of the Gromov-Hausdorff distance better referred to as Gromov-Wasserstein distance. The direct computation of the GH distance leads to NP hard problems, and therefore the construction of easily computable lower bounds is important. In this talk we review some families of known lower bounds for the GH and GW distances.

For more information please visit the seminar website at:
http://www.math.nyu.edu/seminars/geometry_seminar.html.