1 Previous work

Shape analysis, classification, and retrieval has been developed quite extensively, especially in last decade, in part due to a rise in the number of available models and techniques to process them. In order to effectively exploit this rise in usable shapes, the development of a comparison and retrieval system is necessary, prominently in the 3D model search engine developed at Princeton[?], as well as at the National Research Council of Canada[?], the National Taiwan University[?], and others[?, ?, ?].

There is a broad swath of literature dedicated to 3D retrieval shape retrieval, with many different methods with their particular strengths and weaknesses. All of these must be evaluated with respect to several salient attributtes: foremost, robustness and discrimination, but also efficiency, necessity of preprocessing, ability to partially match, and strictness of requirements for data (e.g. mesh versus point cloud, closed meshes, etc.). Evaluating robustness and performance can be done with several standard datasets