**briefly discuss necessary changes**

-------------------- Summary Review --------------------

In your revisions, please answer all reviewers questions and add:

- A quantitative evaluation of the accuracy and a comparison with the alternative slower k nearest neighbor graph methods.

【加实验：给出Table 1内几种方法的精度；对比几种方法的搜索效果】

- A comparison to simply segmenting the database.

【加实验：与pre-segmentation做对比】

-------------------- Review 1 --------------------

**If this method has any advantages over the existing kNNG methods other than query runtime performance**. In Table 1, there is no similar comparison of matching error, such as in Table 3. There is also no comment in the paper about accuracy improvements.

【加实验：给出Table 1内几种方法的精度】

**Why the descriptor as described in sec 5.1 is invariant to the index ordering of the contour polylines**. IE, for two contours, the descriptor only makes sense if the (i,j) indices of the matrix refer to points in comparable relative spatial locations. In other words, where does 'i' start on each polyline?

【修改文字】

Fig 12 shows a global symmetry example. **Would local symmetry/similarity matching also be possible**?

【修改文字或做个新例子】

-------------------- Review 2 --------------------

I would argue that the main novelty comes from putting together the complete system, but I am not convinced that they can be claimed as major contributions.

【修改文字】

In the figures, the retrieved results are not very similar to the sketches. This can be good or bad. In the good case, no great matches are available in the system and the system does a good job in retrieving the best available matches. In this case that indicates robustness. In the bad case, there would be many similar or better retrieval candidates that the system fails to identify. How can I tell? Therefore, t**he traditional evaluation of retrieval problems uses quantitative metrics, e.g. precision, recall, F-score, precision-recall curves, average precision, ... and a comparison of these metrics to competing algorithms. This submission does not provide quantitative results of the quality of the retrieval.**

【不想加实验，想办法用文字说过去：本意见内提到的“precision recall, F-score, precision-recall curves”无法完成。得想个办法把这条意见说过去！】

**The partial shape matching problem is not well specified**. It is difficult to define a metric that computes the quality of partial matches and it is already difficult to get humans to agree on what partial matches are good or not. This is a general problem, also for other methods in this area, but I feel it could have been tackled a bit better.

【修改文字】

**More retrieval results could be presented.** Instead of showing more retrieval results, the paper contains very rough sketches of quite adventerous applications. I understand that other papers follow the same template, but the underlaying strategy is to replace quality with quantity.

【修改文字或做更多例子】

-------------------- Review 3 -------------------

In the Section of Introduction, I would not say that sketch-based modeling "typically" interprets sketches in a data-driven manner by searching a repository for a matching high-quality part. That is sketch-based shape retrieval, and only one, atypical approach to sketch-based modeling.

【修改文字】

Are contours sampled uniformly from directions around the unit sphere (Section 4, third paragraph)?

【修改文字】

When sampling uncovered points on the contour ("Construction of the RC-kNNG" point 1), what happens when a point is sampled that does not have 10 consecutive points on either side? (Relatedly, 20 is an even number; how can a point be at the center of 20 consecutive points.)

【修改文字】

Why must every one of the k-nearest neighbors be within a distance threshold for a section to be considered valid (last paragraph of Section 4)? Why not simply disconnect edges above the threshold? Does clustering the list mean clustering all valid sections? Is this clustering based on the same distance defined in Section 5.1?

【修改文字】

How are super faces selected when the retrieved shape has multiple contours matching the query? Is the process described in the first paragraph of Section 6.2 repeated for each contour? How do you "filter out invalid parts and collapse multiple instances into single part" (last sentence of 6.2)?

【修改文字】

What is the sub-SFG (Section 7, "Multi-scale part suggestion")? What makes the suggested segments multi-scale? If the normalized cuts produces sets of faces, these faces may not have silhouettes, so how can the contour descriptor and distance be computed? More explanation is needed.

【修改文字】

Are the whole-object contours represented with m=20 samples when computing distances (Section 8, "For the two kNN graph methods...")?

【修改文字】

I don't understand where the scale parameter S fits into the multi-scale part suggestion (Section 7, "Multi-scale part suggestion" and Figure 14). S does not appear in the expression for Tn. The figure shows different scale levels, but all shapes appear to be segmented into 2 or 3 parts uncorrelated with the scale level.

【修改文字】

Why is it a problem that the contour descriptor is not scale invariant (Section 9, Limitations) if the database stores contours at various scales?

【修改文字】

## Typos

Section 2: "develop a statistical models"

Section 3: "a online phase"

Section 6.3.2: "an other edge" should be "another edge"

【修改文字】

Technical Soundness: Why does increasing the superface count shrink the matched part (Figure 15)? There may be a normalization term missing somewhere.

【修改文字】

The primary weakness is a missing evaluation of the fundamental premise. The premise of the approach is that the example database becomes larger by implicitly containing all possible segmented parts. This is interesting and a worthwhile idea, but it is unevaluated. **Why not simply run segmentation on the database during preprocessing**? Then any of the approaches mentioned in the related work (sketch-based or 3D shape-based) which retrieve similar entire shapes from a database could be compared to. **Can users no longer find the sub-parts they are looking for**?

【修改文字】

The "RC-kNNG Retrieval Performance" doesn't explain whether the alternative indexing structures retrieve the same parts.

【给出Table 1内几种方法的精度】

Does the proposed approach work on a different database than the one it was developed with?

【修改文字】

-------------------- Review 4 --------------------

The number of camera views and how they are determined is not given.

【修改文字】

The super-faces are analogous to super pixel representations in images — perhaps citation of a super pixel paper would be appropriate.

【修改文字】

— missing discussion of choice number and location of camera views needed. This seems to be a key issue, and would seem to depend on the types of objects in the data base.

【修改文字或加实验：我不想加实验，仅修改文字可以吗？】

— the extreme simplicity of the partial shapes used. In a significant database an extraordinarily large number of partial geometries could match the very simple sketches used here.

【修改文字】

— the very small size of the data based searched. There are obviously larger data sets available, making it seem suspicious that this doesn’t scale well.

【修改文字】

In the example applications, the ideas are interesting, but the pose of the partial shape used for computing the boundary contours appear carefully selected.

【修改文字或加实验】

There are examples of results for a user sketch, but it is not clear whether this is just a sample “user sketch” made by one of the authors. Similar to FKS04, a compelling test would be to give the user something specific to design from pieces of objects in the database.

【加实验】