# Sketch-Based Shape Retrieval ACM Transactions on Graphics (Proc. SIGGRAPH 2012)

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## Abstract

We develop a system for 3D object retrieval based on sketched feature lines as input. For objective evaluation, we collect a large number of query sketches from human users that are related to an existing data base of objects. The sketches turn out to be generally quite abstract with large local and global deviations from the original shape. Based on this observation, we decide to use a bag-of-features approach over computer generated line drawings of the objects. We develop a targeted feature transform based on Gabor filters for this system. We can show objectively that this transform is better suited than other approaches from the literature developed for similar tasks. Moreover, we demonstrate how to optimize the parameters of our, as well as other approaches, based on the gathered sketches. In the resulting comparison, our approach is significantly better than any other system described so far.

## Downloads

- Paper [pdf]
- Video
- Sketch dataset [png/svg, ~65MB]
- Slides

## BibTeX

```
@article{eitz2012sbsr,
author={Eitz, Mathias and Richter, Ronald and Boubekeur, Tamy and Hildebrand, Kristian and Alexa, Marc},
title={Sketch-Based Shape Retrieval},
journal={ACM Trans. Graph. (Proc. SIGGRAPH)},
year={2012},
volume={31},
number={4},
```

```
pages={31:1--31:10}
}
```

# Browsable retrieval results

Complete retrieval results for all sketches in our dataset. For each sketch (1814 total), we show the top 20 shapes retrieved using our 3D search engine.

Browsable shape retrieval results »

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