

Advanced Search Options for Desk Lamps using Sketch Based Image Retrieval

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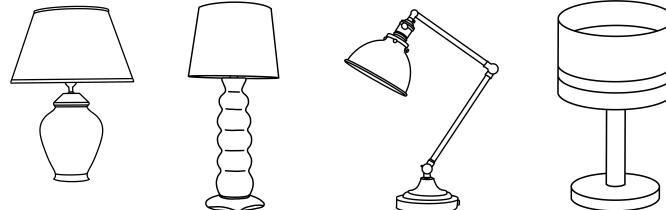
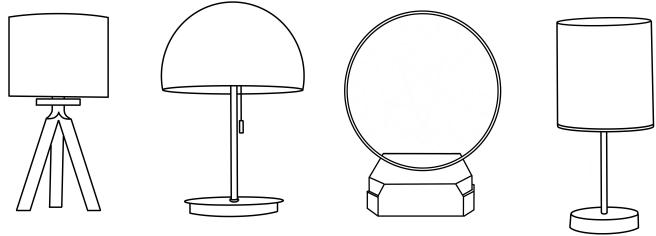
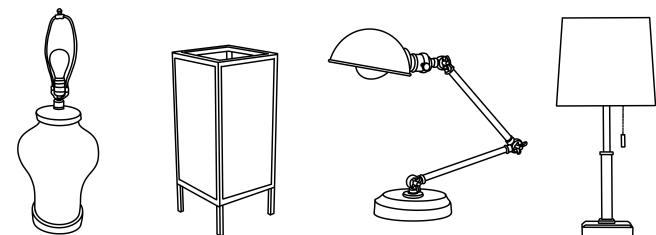
Senior Data Scientist I

How would you describe this lamp to a search engine?



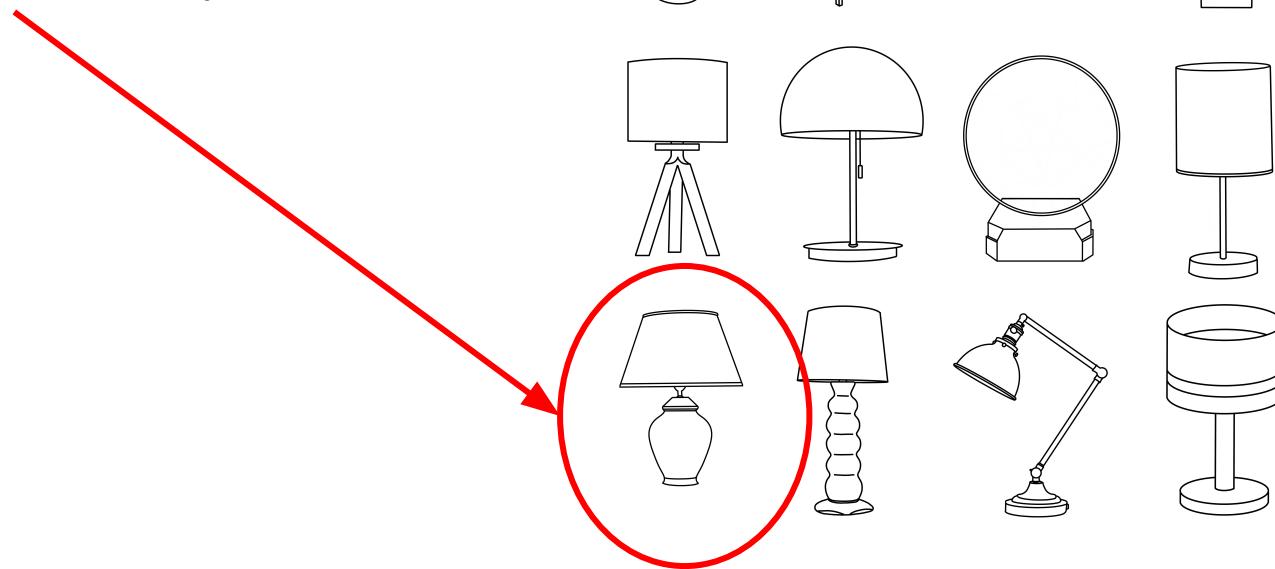
Choose from lamp outline in advanced search options

- Allows buyer to describe something they don't have words for

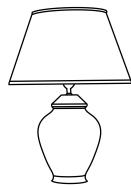


Choose from lamp outline in advanced search options

Buyer chooses this style



Buyers input in
advanced search



Output on Etsy



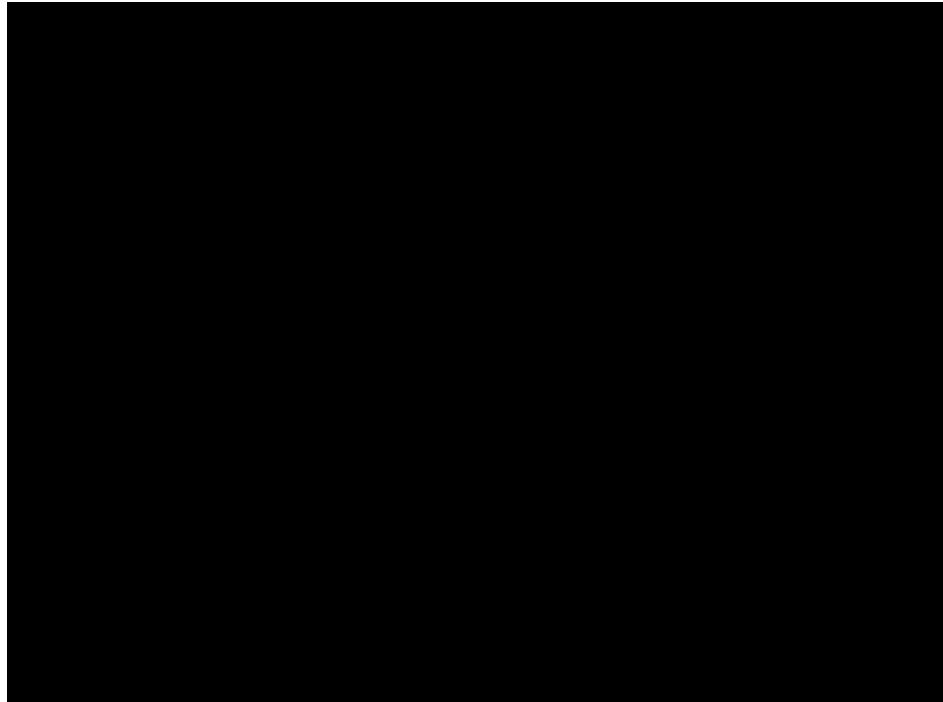
Method - pre trained Sketch Based Image Retrieval Model

Bui, Tu, et al. "Sketching out the details: Sketch-based image retrieval using convolutional neural networks with multi-stage regression." *Computers & Graphics* 71 (2018): 77-87.

Special thanks to Dr. Tu Bui at the computer vision department at University of Surrey UK

Demo

- Dataset - 30,000 table lamp images from etsy.com
- Created lamp outlines based on centroid lamp images collected from clustering all 30k image features
- Ran 25 lamp outlines through the image retrieval program and output the top 200 closest matches for each outline



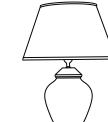
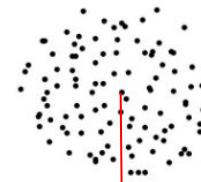
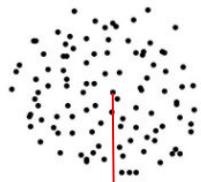
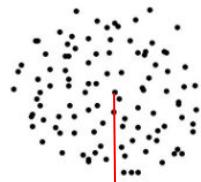
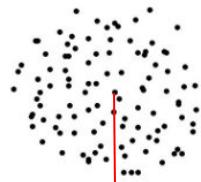
Clustered Etsy Table Lamp Images to Produce most Relevant Outlines

All results for table lamps on Etsy.com



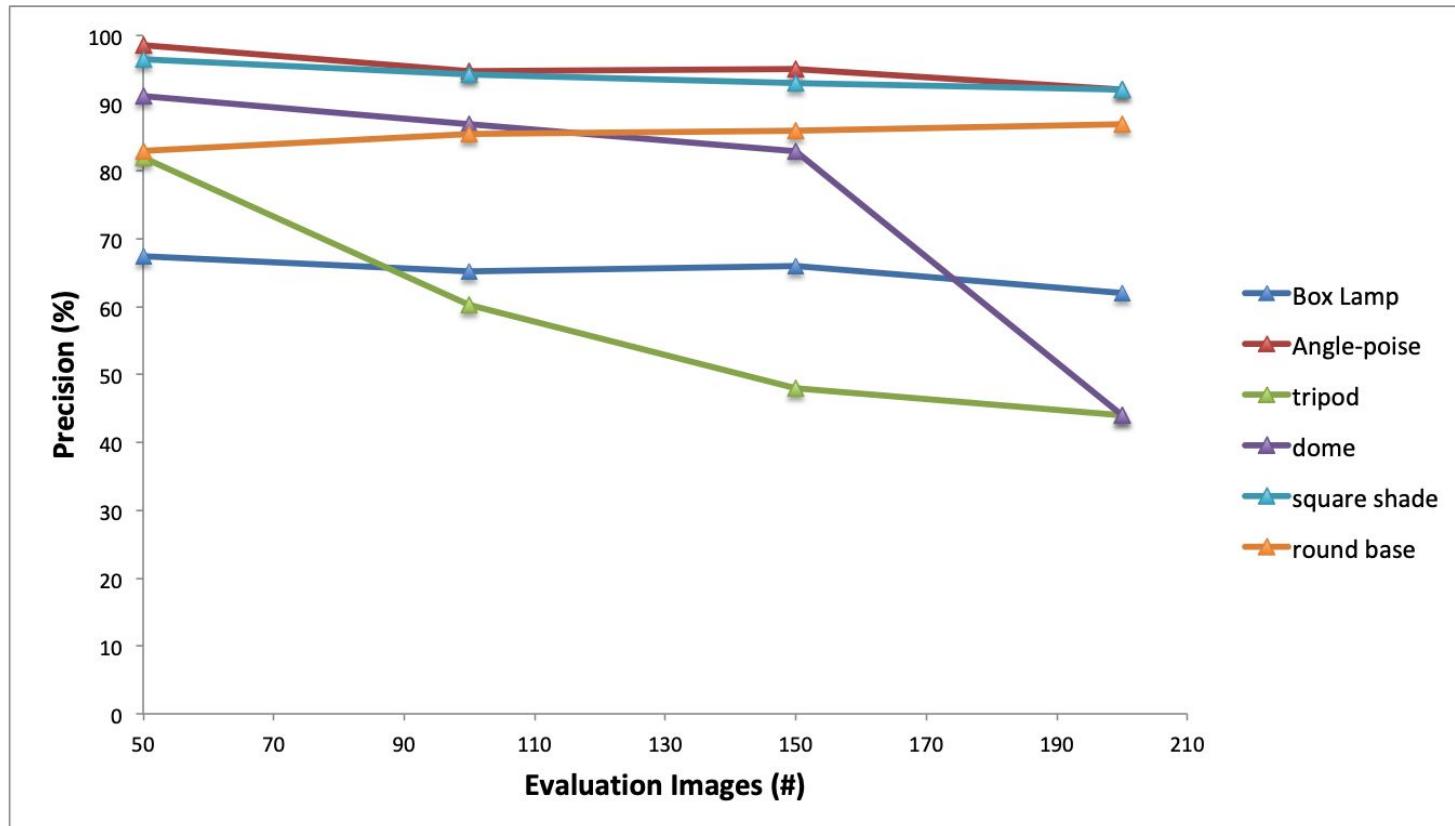
Cluster into groups

Create outlines
for archetypal
image in each
group



Evaluating Model

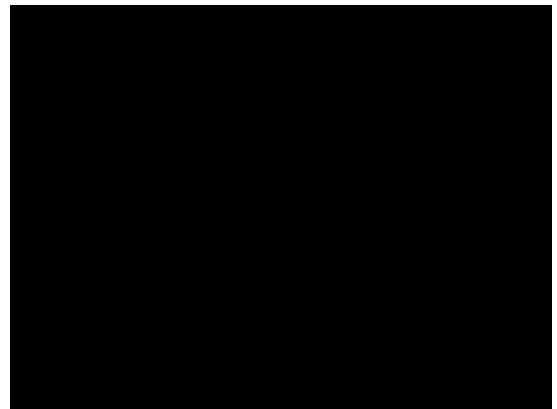
- Evaluated Precision at top 50, 100, 150, and 200 image results for 6 outlines



Options for UI

Our program allows for:

1. User chooses from lamp outline options
2. User can choose from different lamp shade, stem, and base options to design their own lamp
3. After a buyer chooses a sketch, have ~10 more sketches in that category for them to filter further
4. User uploads image
5. Free hand sketch



Thank you!