

CROWDSOURCED OBJECT SEGMENTATION WITH A GAME

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PROBLEM

We previously introduced Ask'nSeek, a web-based cooperative game that brings knowledge about objects in an image under the form of textual and spatial information. We developed a segmentation algorithm that uses the information from Ask'nSeek and performs well on a set of 20 images from the PASCAL VOC dataset. Through this competition, we aim at testing our algorithm on a larger dataset, the Berkeley-DCU Segmentation Data Set ([4]).

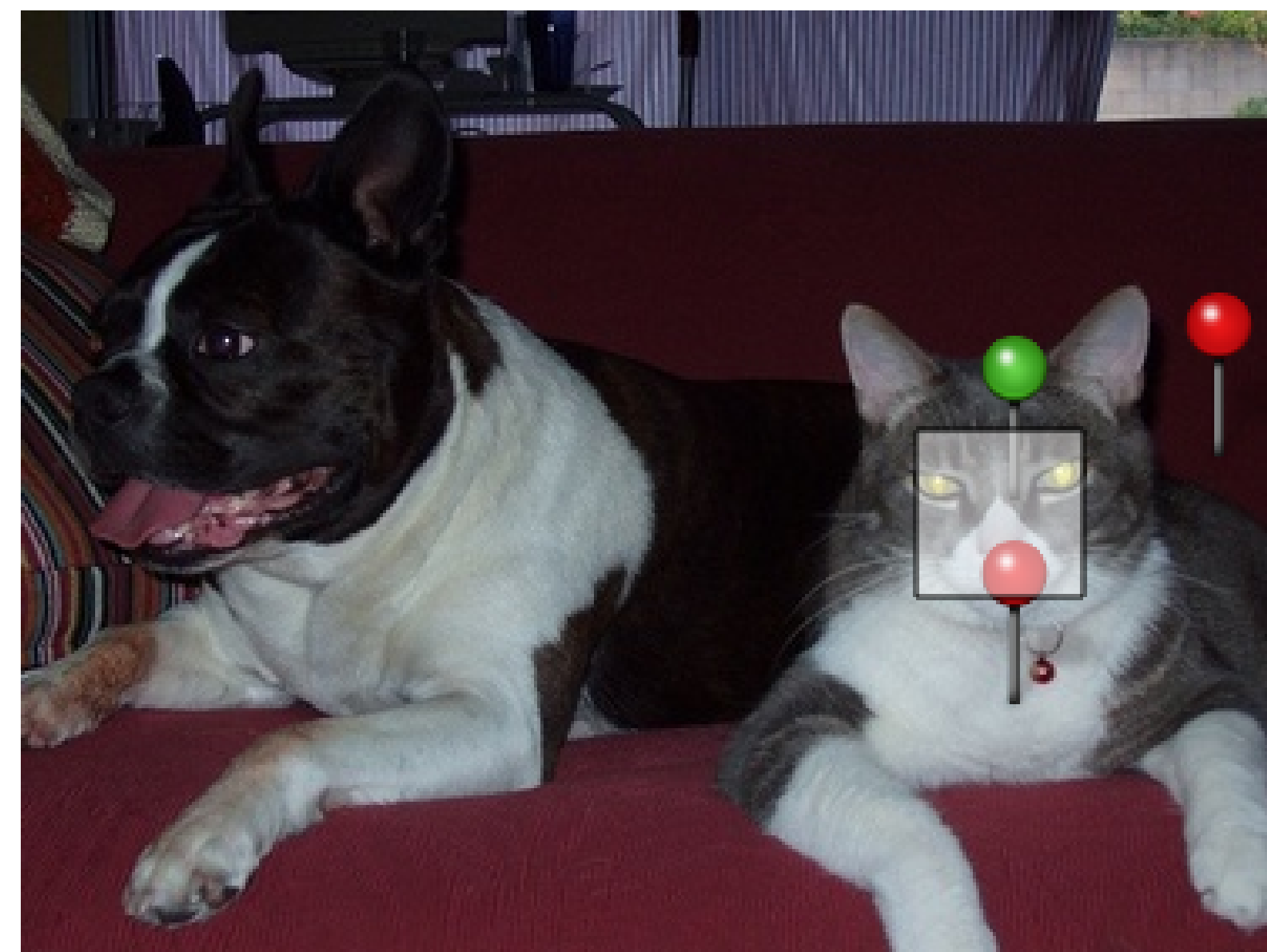
ASK'NSEEK

871

Ask' nSeek

00:52

You are playing as SEEKER

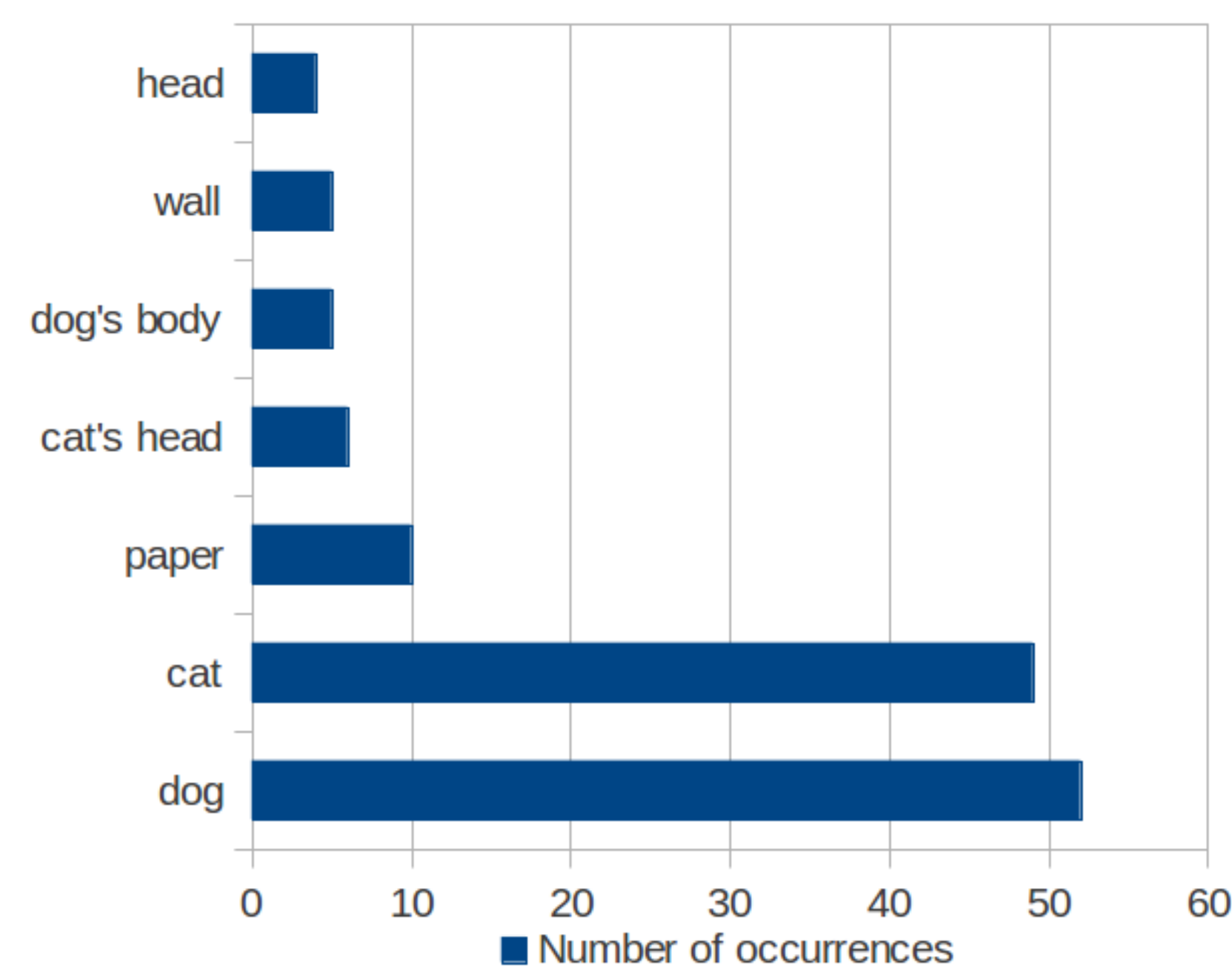


Indications:

on the right of dog
on cat
on cat's head

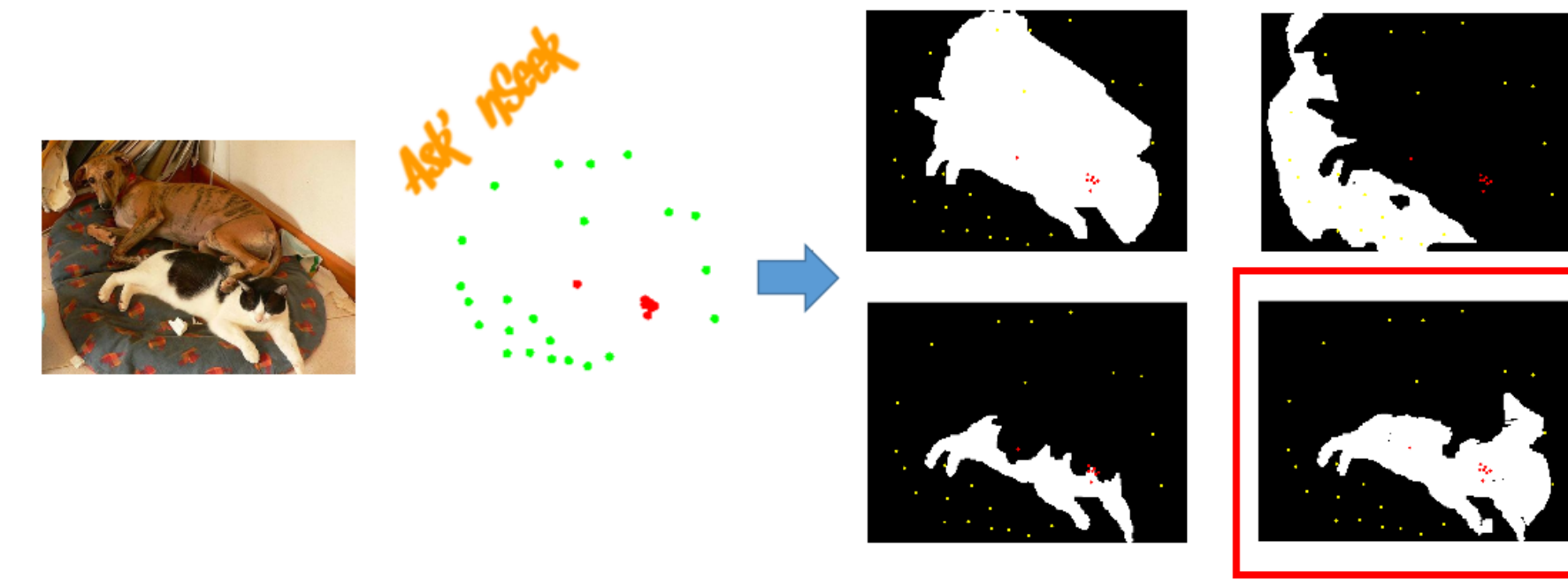
You can play the game on : www.tinyurl.com/askandseek

CROWDSOURCED DATA



Other tags: pet bed, dog leg, bed, cat face, dogs face, leg, dog head, pillow, left leg, belly, nose, animal, dog face, dog front leg, etc.

SEGMENTATION



Crowdsourced traces are used to find the best candidate among a set of possible objects masks, provided by the CPMC algorithm ([3]).

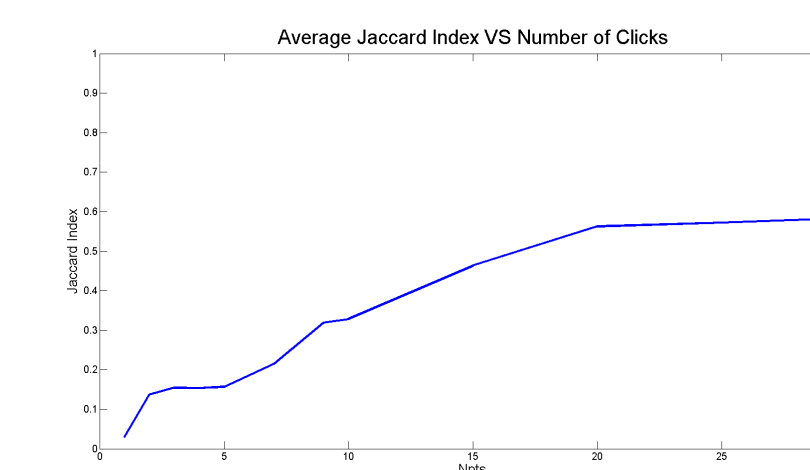
BERKELEY-DCU DATASET

- Dataset built to evaluate interactive segmentation.
- 96 images extracted from the Berkeley segmentation dataset.
- Each image is associated to a ground truth mask manually annotated.



CHALLENGES

- **Detect cheating behaviour:** we conducted a beta- user study, involving 50 participants who played around 1500 games. Analysis of these games (average duration of a game, distribution of hidden regions on an image, etc.) can help detecting cheating behaviour. Moreover we have to ensure one person does not play both roles at the same time (using IP address tracking for example).
- **When to stop playing an image ?** We built a simulator ([1]) in order to determine how many clicks are needed for an object to achieve a high enough segmentation quality.



- **How to control traces quality ?** We introduce, in addition to the 96 images from the dataset, a few images for which we have the complete ground truth. By having users regularly play on one of these images, we can evaluate whether inputs are reliable and if not, discard them.

THANKS



REFERENCES

- [1] A. Salvador, A. Carlier, X. Giro I Nieto, O. Marques, V. Charvillat. Crowdsourced Object Segmentation with a Game In *CrowdMM '13*
- [2] A. Carlier, O. Marques, V. Charvillat. Ask'nSeek, a New Game for Object Detection and Labelling In *ECCV Workshops '12*
- [3] J. Carreira, C. Sminchisescu. CPMC: Automatic Object Segmentation using Constrains Parametric Min-Cuts In *PAMI '12*
- [4] K. McGuinness, N. E. O'Connor. A Comparative Evaluation of Interactive Segmentation Algorithms In *Pattern Recognition '09*