Crowdsourced object segmentation with a game

Vincent Charvillat
Axel Carlier

Amaia Salvador Aguilera
Xavier Giró i Nieto

Oge Marques
Outline

• Motivation
• Object Segmentation
• Experiments
• Results
• Conclusions
• Ongoing work
Motivation
Motivation
Semi-Supervised object segmentation

Rough segmentation

Semi-Supervised object segmentation

Semi-Supervised object segmentation

Boring task for users!
Games with a purpose


Ask’nSeek

Motivation

[Images of a dog and a cat, with a diagram showing the process of Ask nSeek]
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• Motivation
• **Object Segmentation**
• Experiments
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• Conclusions
• Next steps
Constrained parametric min-cuts for automatic object segmentation (CPMC)

Constrained parametric min-cuts for automatic object segmentation
Motivation
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• **Experiments**
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Experiments

How many clicks do we need to achieve a certain quality in the segmentation?

Test the algorithm for a large image dataset
Pascal VOC2010

1928 images divided in:
Train (964)
Validation (964)
Problem

Ask' nSeek

Simulator
Simulator

• The simulator generates points using the ground truth of the image.
Simulator: Location of clicks

Simulator: Foreground/Background ratio
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Jaccard index

\[ J(A, B) = \frac{|A \cap B|}{|A \cup B|}. \]

Measure of similarity between the segmentation result and the ground truth mask
Results

Using Pascal VOC2010 (Validation)
Results

Using Pascal VOC2010 (Validation)
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Conclusions

• Realistic simulator to process large amounts of data.
• Estimation of the expected AVERAGE Jaccard index by clicks.
• Inter-class variance of results.
Ongoing Work

MISTAKES HAPPEN.
Ongoing Work

- Image segmentation
  - CPMC candidates

- Label propagation through hierarchical partitions (e.g. UCM, BPT...)
- Grabcut + Superpixels
Ongoing Work

• Data collection
  • Awarded with $250 in CrowdMM Competition (ACM MM Barcelona 2013).

• Already more than 1500 games collected with 100 users

More on that in our poster!
Questions, suggestions...

Thank you for your attention

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