Searching for objects driven by context

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**Task:** object detection

**Dominant paradigm:** sliding windows
- score **ALL windows** on a grid with a classifier
- unnatural and wasteful
  \(\sim 100000\) windows per image

Felzenszwalb et al. PAMI 2010; Dalal et al. CVPR 2005; Vedaldi et al. ICCV 2009
Our idea: context driven search

- choose next window based on previous ones
- exploit statistical relation between objects and context
How does it work

current vote map  test image  training images

find similar training windows

updated vote map

transfer displacement vector

training window + displacement vector = ground truth
# Results on VOC PASCAL 10

<table>
<thead>
<tr>
<th></th>
<th>Sliding Windows Felzenszwalb 2010</th>
<th>Our method</th>
</tr>
</thead>
<tbody>
<tr>
<td># windows</td>
<td>25000</td>
<td>100</td>
</tr>
<tr>
<td>mAP</td>
<td>0.266</td>
<td>0.293</td>
</tr>
</tbody>
</table>

+ 250x fewer windows evaluated

+ better performance than Sliding Windows

*Context is a powerful way to drive the search for objects*

Felzenszwalb et al. PAMI 2010