Detecting carried objects from Video Sequences

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Haritaoglu’s work

\[ x = \begin{cases} 
\text{Non-Symmetric} & \text{if } q_s^x > \min \{ q_s^l, q_s^r \} + \varepsilon \\
\text{Symmetric} & \text{otherwise}
\end{cases} \]
Haritaoglu’s work
Detecting carried objects from Silhouettes

Aligned Silhouettes → Temporal Template → Best Match → Protruding Regions → Map of Prior Locations

Detecting carried objects from Silhouettes
Proposed Method
Camera-Specific General Temporal Templates

- Swiss Federal Institute of Technology (EPFL)
Camera-Specific General Temporal Templates
Proposed Method

\[ d(M_T, P) = \sum_{x,y} |M_T(x,y) - P(x,y)|(2h - y) \]
Proposed Method

Temporal Template

Camera Template

Protruding (Person,Model)

Connected Regions
Introducing Priors and Continuity

Temporal Template
Best Match
Protruding Regions
Prior Map
MRF Detection
Another Example
Dataset

- PETS2006

Cam1  Cam2  Cam3  Cam4
Dataset

- PETS2006
- 106 individually tracked people
  - Groups discarded
  - Tracks < 10 frames discarded
- 83 GT bags
Dataset
Results

The chart compares the performance of the Proposed Method and Haritaoglu's Method in terms of Precision and Recall. The Proposed Method shows a consistently higher Precision across Recall values compared to Haritaoglu's Method.
Introducing priors
## Results

<table>
<thead>
<tr>
<th>Method</th>
<th>Precision</th>
<th>Recall</th>
<th>TP</th>
<th>FP</th>
<th>FN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thresholding</td>
<td>39.8%</td>
<td>49.4%</td>
<td>41</td>
<td>62</td>
<td>42</td>
</tr>
<tr>
<td>MRF - Prior</td>
<td>50.5%</td>
<td>55.4%</td>
<td>46</td>
<td>45</td>
<td>37</td>
</tr>
</tbody>
</table>
Thank you 😊

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