PrivAttNet: Predicting Privacy Risks in Images Using Visual Attention

Chen Zhang  Thivya Kandappu  Vigneshwaran Subbaraju
How to estimate the measure of psycho-physical phenomena “privacy-sensitivity”? 
Goals

1. Quantifying the privacy sensitivity

2. Localise the privacy attributes using soft heat-maps
PrivAttNet

Deep CNN feature extractor

Visual soft-attention network

LSTM based RNN

Privacy score regressor
Key Results

Performance in estimation of privacy risk

<table>
<thead>
<tr>
<th>Method</th>
<th>L1-Error</th>
<th>$\rho_p$</th>
<th>$\rho_s$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP-PR [1]</td>
<td>0.656</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>PR-CNN [1]</td>
<td>0.637</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>PrivAttNet</td>
<td>0.40</td>
<td>0.87</td>
<td>0.84</td>
</tr>
<tr>
<td>PrivAttNet$_{MLC}$</td>
<td>0.44</td>
<td>0.83</td>
<td>0.76</td>
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<tr>
<td>PrivNet</td>
<td>0.43</td>
<td>0.83</td>
<td>0.78</td>
</tr>
</tbody>
</table>

~ 59% improvement in L1 error

Better correlation with human provided scores

Key Results

Small objects (inc. background)  Cluttered objects
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For further details, please visit our poster:
Poster Session: **PS T3.9**

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