Deep DensePose R-CNN

PlumSix

KAIST x netmarble
About PlumSix

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Task
Origin DensePose R-CNN

- We focused on that
  - Output resolution isn’t large enough
  - Time complexity doesn’t matter in the evaluation
  → Approach: build up-sampling layers deeper
Our Model
Inspiration – FCN8
Our Model
Experiments

• Fine-tuned DensePose R-CNN (+X101-32x8d)
• Most of hyper-parameters followed baseline’s
  • Image per minibatch : 3 → 2
  • Learning rate x0.666
  • Learning schedule x1.5 (195k iter)
  • Used Xavier initializer for new layers
• No ensembles
• No additional datasets
• Freeze backbone, faster branch
## Results

<table>
<thead>
<tr>
<th></th>
<th>mAP</th>
<th>AP50</th>
<th>AP75</th>
<th>APm</th>
<th>API</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origin</td>
<td>0.56</td>
<td>0.89</td>
<td>0.64</td>
<td>0.51</td>
<td>0.59</td>
</tr>
<tr>
<td>Ours</td>
<td>0.582</td>
<td>0.893</td>
<td>0.657</td>
<td>0.504</td>
<td>0.610</td>
</tr>
</tbody>
</table>
Conclusion

• Our model is nothing but fine-tuned deep DensePose R-CNN which returns higher resolution output
  • We feed FPN layers again
  • mAP performs about 2% better
  • But for smaller area, our model doesn’t help

• We may try some techniques introduced in the DensePose paper
Thank you