

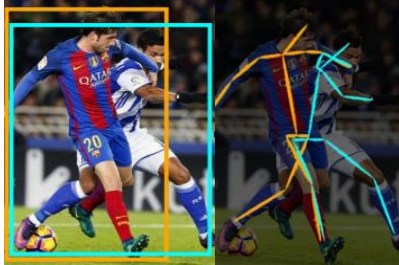
Self-Supervision and Spatial-Sequential Attention Based Loss for Multi-Person Pose Estimation

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Background

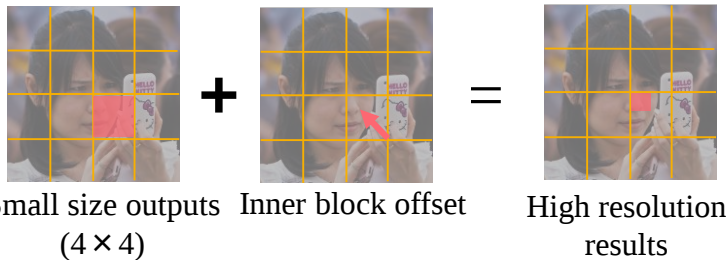
Importance & Application

- Sports analysis
- Activity recognition
- Surveillance
- ...

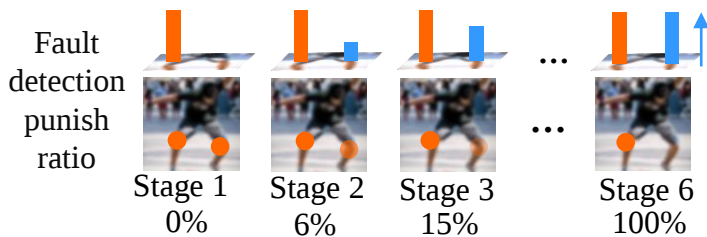


Proposals

- P1: Resolution irrelevant encoding with inner-block offset



- P3: Progressive direction distinction based multi-stage loss function



Results

- OKS score and visualization

Test dataset	OpenPose	+P1~4
COCO Mini val2014	58.4%	63.9%
COCO Val2017	57.7%	63.1%
COCO Test-dev2017	56.6%	62.8%



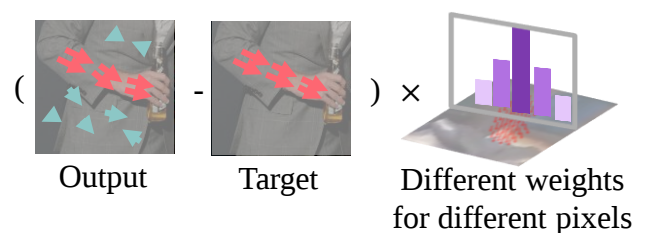
Target

- Improve pose estimation algorithm's accuracy
- The baseline model is OpenPose

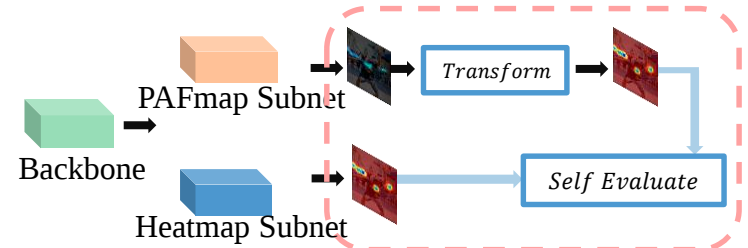
Challenges

- Inevitable upsampling errors
- Information utilization unbalance
- Inefficient utilization of network stages
- No task level information sharing

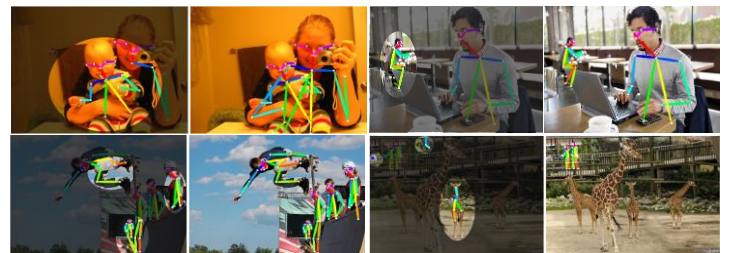
- P2: Gaussian loss mask based spatial attention loss function



- P4: Kullback-Leibler divergence based self-supervision loss function



- OpenPose (left) Ours (right)



Conclusion

- The final accuracy is 0.639 while that of conventional work is 0.584
- Improved multi-person pose estimation algorithm's accuracy with low extra computation complexity

