2D Human Pose Estimation: New Benchmark and State of the Art Analysis: Supplementary Material

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Setting	Torso	Upper leg	Lower leg	Upper arm	Fore-arm	Head	Upper body	Full body
Gkioxari et al. [1]	50.3	-	-	28.2	12.2	-	26.2	-
Sapp&Taskar [3]	50.3	-	-	27.3	16.4	-	27.5	-
Yang&Ramanan [4]	59.2	36.5	36.4	34.4	16.4	70.1	32.1	37.8
Pishchulin et al. [2]	61.8	40.7	37.8	38.2	26.7	70.7	38.3	42.2
Gkioxari et al. [1] + loc	63.3	-	-	33.8	14.9	-	32.1	-
Sapp&Taskar [3] + loc	63.3	-	-	32.4	19.3	-	33.4	-
Yang&Ramanan [4] + loc	**65.1**	39.5	**39.4**	36.9	17.5	**75.5**	34.8	40.8
Pishchulin et al. [2] + loc	64.5	**41.6**	38.6	**39.6**	**27.6**	74.4	**39.8**	**43.7**

Table 1. Pose estimation results (PCP) on the proposed dataset without and with using rough body location ("+ loc" in the table).

Setting	Head	Shoulder	Elbow	Wrist	Hip	Knee	Ankle	Upper body	Full body
Gkioxari et al. [1]	-	36.3	26.1	15.3	-	-	-	25.9	-
Sapp&Taskar [3]	-	38.0	26.3	19.3	-	-	-	27.9	-
Yang&Ramanan [4]	67.5	**50.0**	32.6	22.2	29.6	29.0	29.5	34.9	37.7
Pishchulin et al. [2]	**68.2**	45.7	**39.2**	**30.9**	**34.9**	**33.1**	**32.1**	**38.6**	**41.2**

Table 2. Pose estimation results (PCKh) on the proposed dataset.

Setting	PCP		PCPm		PCKh	
	Upper body	Full body	Upper body	Full body	Upper body	Full body
Gkioxari et al. [1]	26.2	-	26.4	-	25.9	-
Sapp&Taskar [3]	27.5	-	27.8	-	27.9	-
Yang&Ramanan [4]	32.1	37.8	33.1	38.3	34.9	37.7
Pishchulin et al. [2]	**38.3**	**42.2**	**39.1**	**42.3**	**38.6**	**41.2**

Table 3. Summary of pose estimation results using various metrics.

Setting	Head	Shoulder	Elbow	Wrist	Hip	Knee	Ankle	Upper body	Full body
Yang&Ramanan [4]	67.5	50.0	32.6	22.2	29.6	29.0	29.5	34.9	37.7
Yang&Ramanan [4] retrained	73.2	56.2	**41.3**	32.1	36.2	33.2	34.5	**43.2**	**44.5**
Pishchulin et al. [2]	68.2	45.7	39.2	30.9	34.9	33.1	32.1	38.6	41.2
Pishchulin et al. [2] retrained	**74.2**	**49.0**	40.8	**34.1**	**36.5**	**34.4**	**35.1**	41.3	44.0

Table 4. Pose estimation results (PCKh) on the proposed dataset after retraining.

References

[1] G. Gkioxari, P. Arbelaez, L. Bourdev, and J. Malik. Articulated pose estimation using discriminative armlet classifiers. In *CVPR'13*.

[2] L. Pishchulin, M. Andriluka, P. Gehler, and B. Schiele. Strong appearance and expressive spatial models for human pose estimation. In *ICCV'13*.

[3] B. Sapp and B. Taskar. Multimodal decomposable models for human pose estimation. In *CVPR'13*.

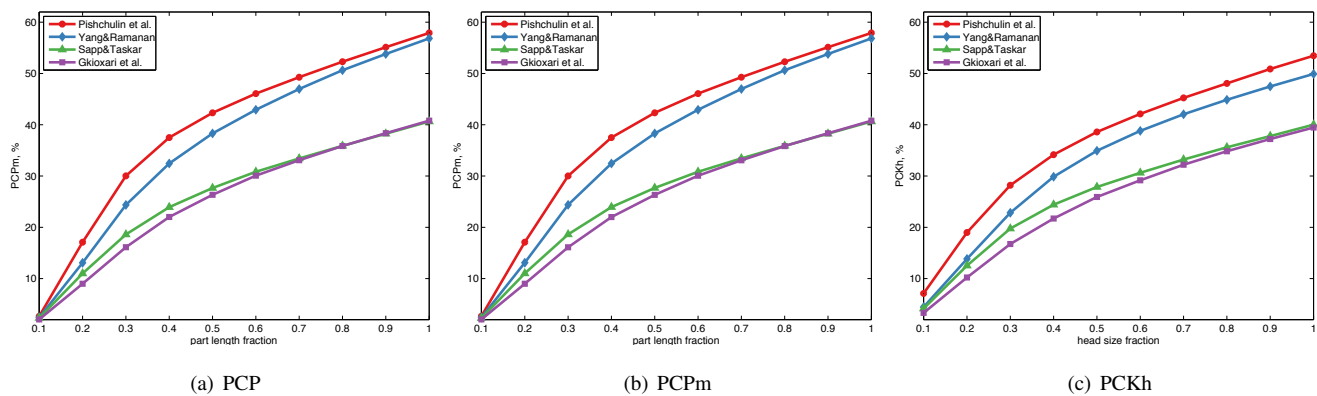[4] Y. Yang and D. Ramanan. Articulated human detection with flexible mixtures of parts. *PAMI'13*, 35, 2013.

(a) PCP   (b) PCPm   (c) PCKh

Figure 1. Pose estimation results when varying threshold in (a) PCP, (b) PCPm and (c) PCKh metrics.

Pishchulin et al. [2]

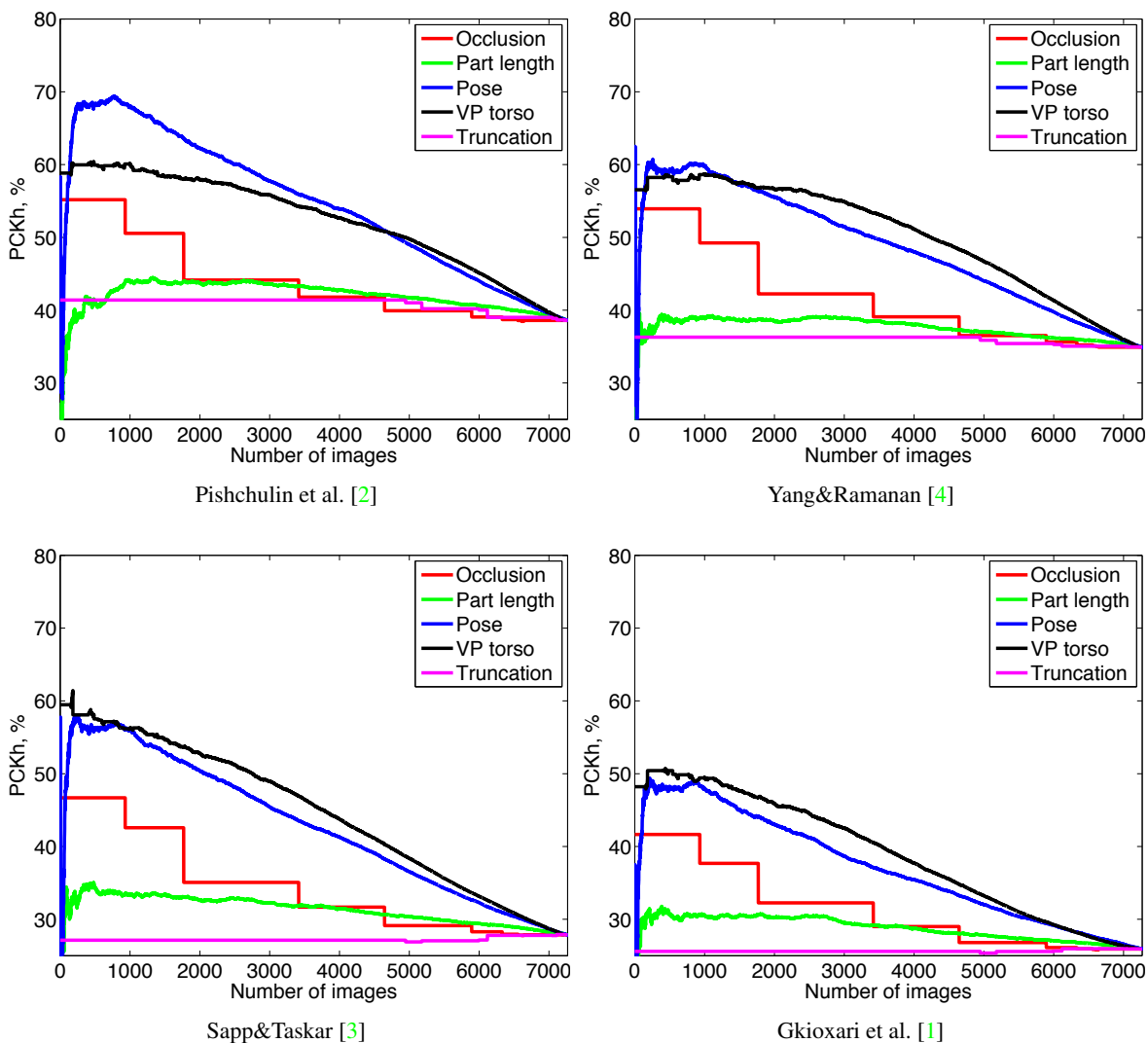Yang&Ramanan [4]

Sapp&Taskar [3]

Gkioxari et al. [1]

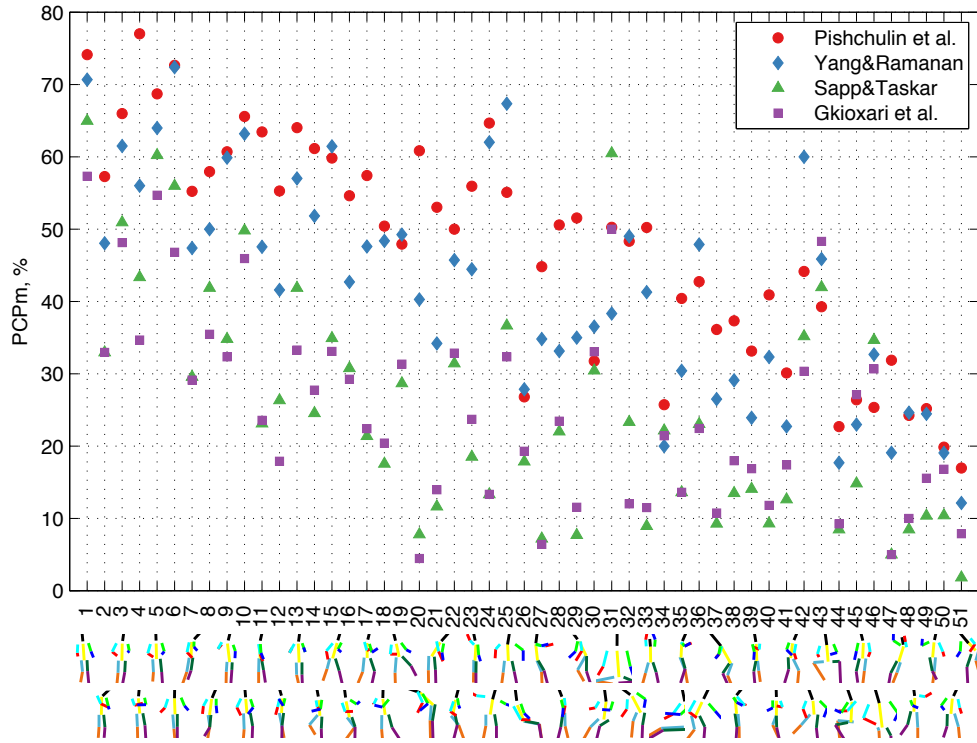Figure 2. Performance (PCKh) as a function of the five complexity measures.

Figure 3. Performance (PCPm) on images clustered by full body pose. Cluster representatives are shown beneath. Pose clusters are ordered by increasing mean pose complexity.
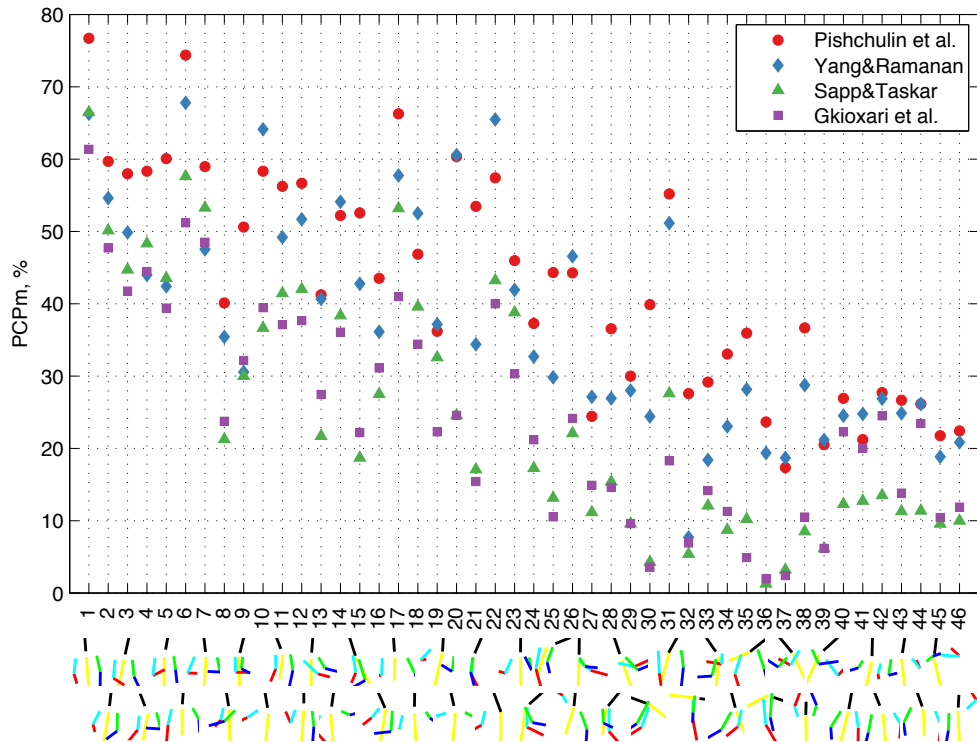

Figure 4. Performance (PCPm) on images clustered by upper body pose. Cluster representatives are shown beneath. Pose clusters are ordered by increasing mean pose complexity.
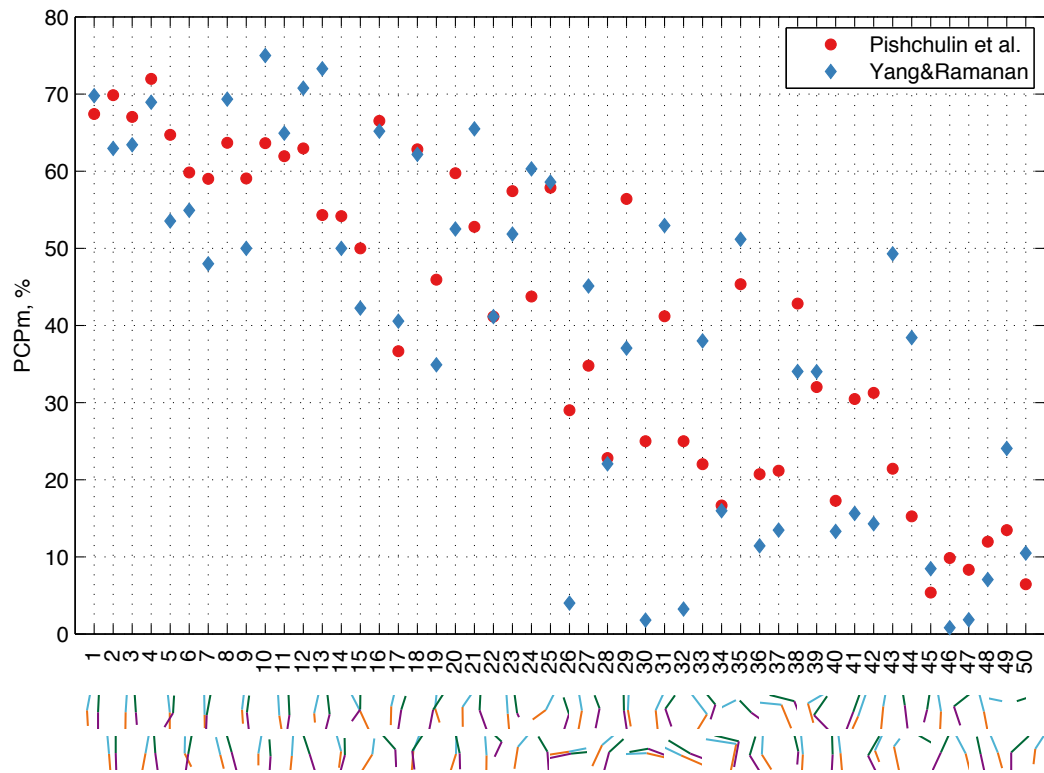
Figure 5. Performance (PCPm) on images clustered using leg cofigurations. Cluster representatives are shown beneath. Pose clusters are ordered by increasing mean pose complexity.