

Improving Person Re-identification via Pose-aware Multi-shot Matching

(*Supplementary materials*)

Yeong-Jun Cho and Kuk-Jin Yoon
Computer Vision Laboratory, GIST, South Korea
`{yjcho, kjyoon}@gist.ac.kr`

In this supplementary paper, we provide additional information such as results of training weights and qualitative evaluations of proposed and comparing methods.

1. Results of Training Weights

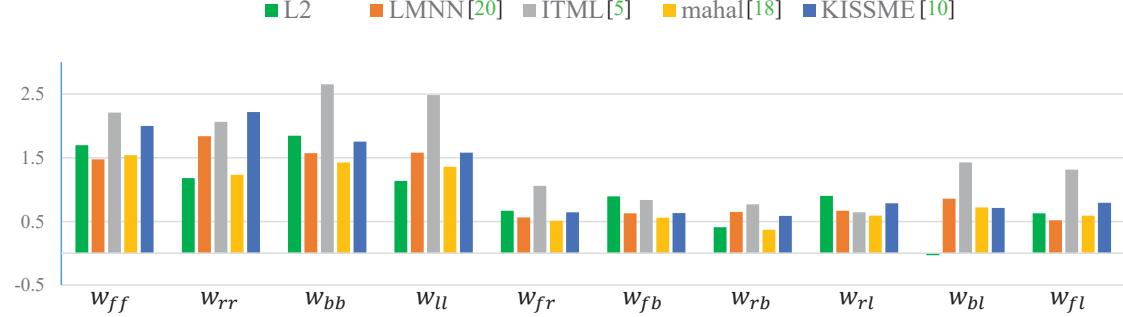


Figure 11. Results of training weights according to each metric learning method.

As we mentioned in Sec. 6.1, the results of training multi-shot matching weights w do not depend on the metric learning methods. Figure. 11 demonstrates that each trained weight shows similar tendencies. For example, the weights of same-pose matching ($w_{ff}, w_{rr}, w_{bb}, w_{ll}$) are generally larger than those of the different-pose matchings ($w_{fr}, w_{fb}, w_{rb}, w_{rl}, w_{bl}, w_{fl}$) regardless of metric learning methods. It support that, our assumption and motivation in Sec. 3 are reliable.

2. Qualitative Evaluations

Figure. 12 shows several example results of person re-identification based on proposed PaMM. Even though there are many gallery images having similar appearances to probes (*i.e.* queries), PaMM generally matches well between probes and images in gallery. Occasionally, it fails to match within rank=1 due to severe illumination changes.

Figure. 13 depicts several comparison results according to matching methods: Mahal (single-shot), Full Match-avg. (multi-shot), Full Match-min (multi-shot), PaMM (multi-shot). We observed that, even though proposed PaMM suffers from severe illumination changes (failing to match within rank=1), other methods are also not free from the illumination changes and we also observed that, multi-shot matching-based person re-identifications showed higher matching performances than single-shot matching-based person re-identifications. Even though, PaMM cannot always outperform the other methods for all matching case, PaMM showed better performance than others when we considered the whole test dataset as shown in Table. 3.

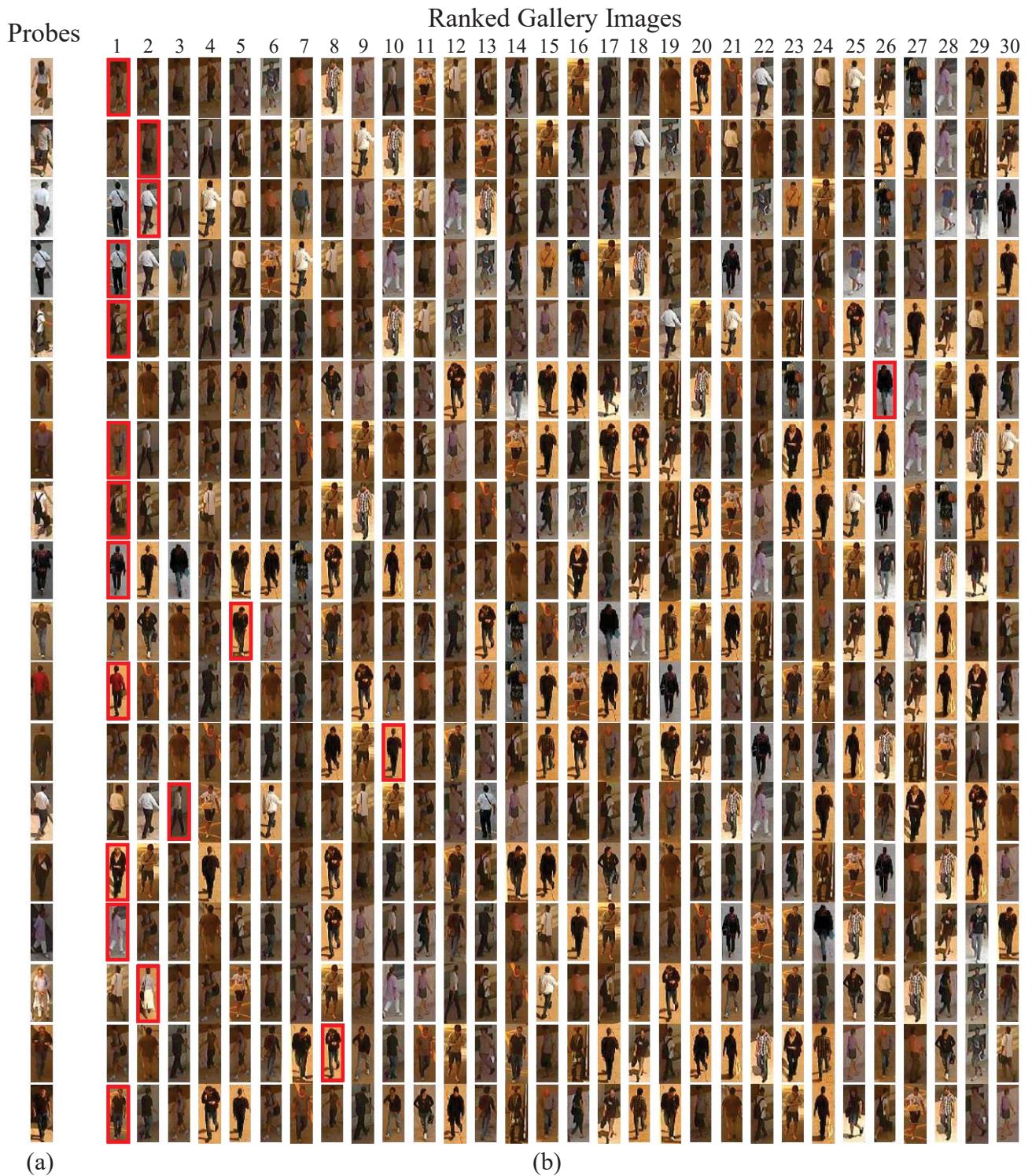


Figure 12. Example results of person re-identification based on PaMM: (a) Probe images (b) The top 30 results sorted left to right. The true matches are highlighted with red boxes. The corresponding quantitative evaluation is in Table 3.

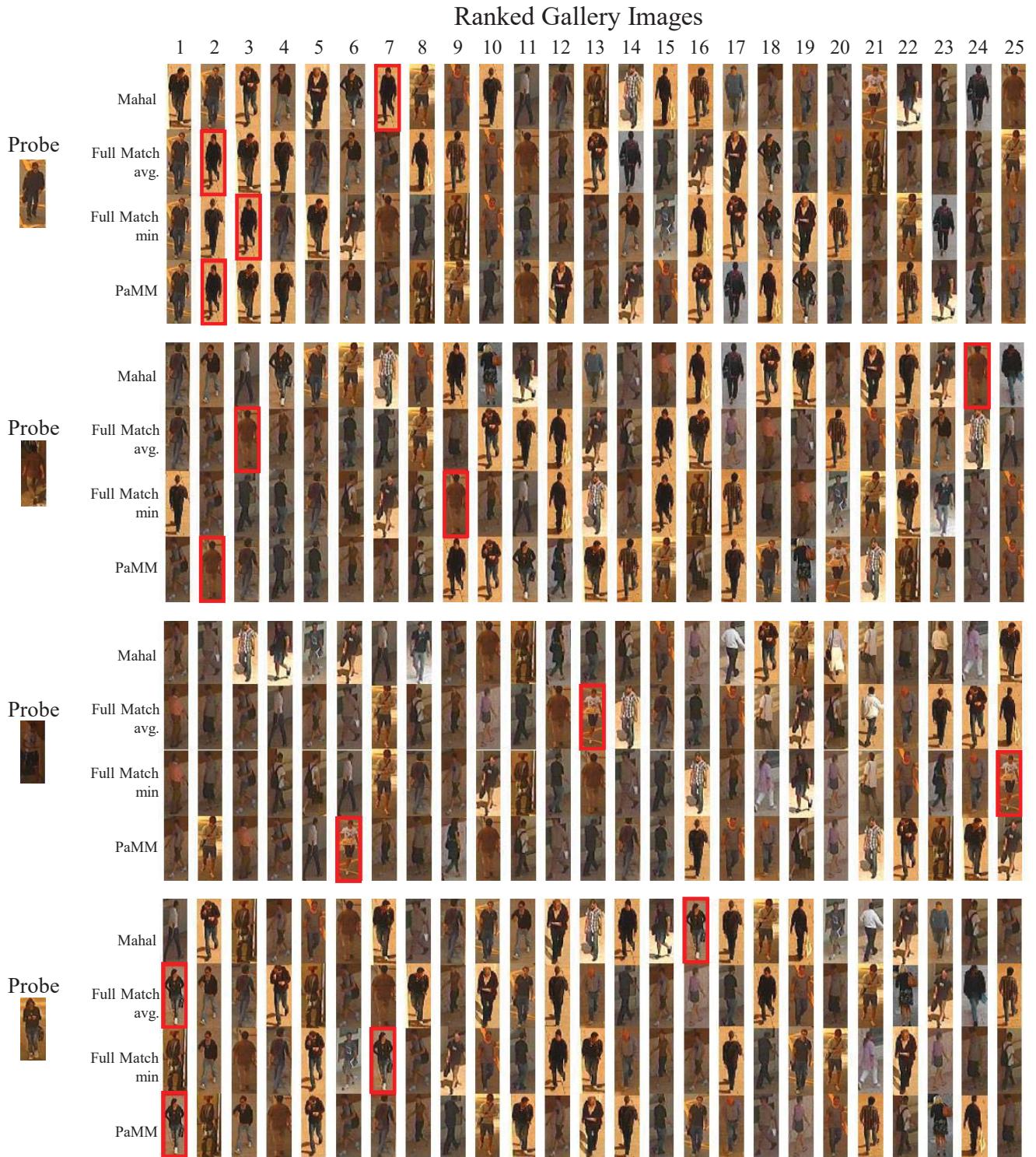


Figure 13. Example results of person re-identification based on comparative methods: Mahal (single-shot), Full Match avg. (multi-shot), Full Match-min (multi-shot), PaMM (multi-shot). The true matches are highlighted with red boxes. No red box means that failing to match within rank 25. The corresponding quantitative evaluation is in Table 3.