Scale Adaptive Network for Partial Person Re-identification: Counteracting Scale Variance

Introduction：

Identical local patterns, indicated by the red boxes, exhibit significant visual differences in various images, the image deformation caused by scale variation can pose substantial challenges in feature extraction, subsequently impacting feature comparison.

In this work, we introduce a novel network called Scale Adaptive Network (SANet) for Partial ReID.

Method：
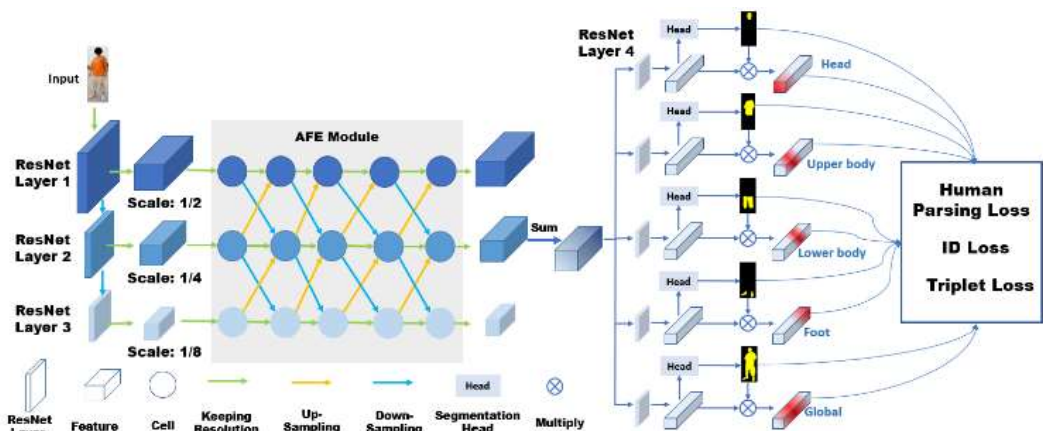
The overall architecture of our proposed SANet. It consists of an adaptive feature extraction (AFE) module and a multi-branch feature extraction (MFE) module. First, the AFE module adaptively generates dynamic multi-scale features against scale variations. Subsequently, we extract the visible information for matching

Experiments：

Category	Method	Partial-REID			Partial-iLIDS-O			Partial-iLIDS-P		
		Rank-1	Rank-3	mAP	Rank-1	Rank-3	mAP	Rank-1	Rank-3	mAP
Holistic	PCB (ECCV18) [25]	66.3	-	63.8	-	-	-	-	-	-
	TransReID (ICCV21) [7]	71.3	-	68.6	-	-	-	-	-	-
Occluded	FPR (ICCV19) [6]	81.0	-	76.6	-	-	-	68.1	-	61.8
	HPNet (ICME2018) [10]	85.7	-	81.8	72.0	-	58.9	68.9	80.7	72.2
	LKWS (ICCV21) [31]	85.7	**93.7**	-	80.7	88.2	-	-	-	-
	ASAN (TCVST21) [28]	86.8	93.5	78.8	81.7	88.3	85.9	71.4	81.9	72.5
	PAT (CVPR21) [15]	88.0	92.3	-	-	-	-	-	-	-
	FRT (TIP22) [30]	88.2	93.2	-	73.0	87.0	-	-	-	-
Partial	DSR (CVPR18) [4]	53.7	72.3	-	-	-	-	55.5	68.0	-
	VPM (CVPR19) [26]	67.7	83.6	-	-	-	-	67.2	76.5	-
	STNReID (TMM20) [17]	66.7	80.3	-	-	-	-	54.6	71.3	-
	PMN (AI22) [20]	76.7	79.0	-	-	-	-	62.2	74.8	-
	FSA (ICME22) [33]	73.7	82.7	-	-	-	-	68.9	82.4	-
	PPCL (CVPR21) [8]	83.7	88.7	-	-	-	-	71.4	**85.7**	-
	SANet (Ours)	**88.7**	92.3	81.5	**84.9**	**89.1**	**86.5**	74.8	84.0	77.3

Performance comparison with state-of-the-art methods on three Partial ReID datasets

Experiments：

w/o AFE module
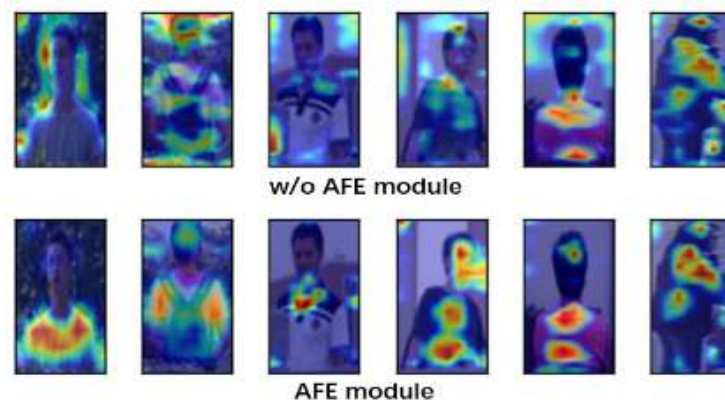
AFE module

The comparison of activation maps generated by models using or not using AFE module