TWO-STREAM MULTI-TASK NETWORK FOR FASHION RECOGNITION
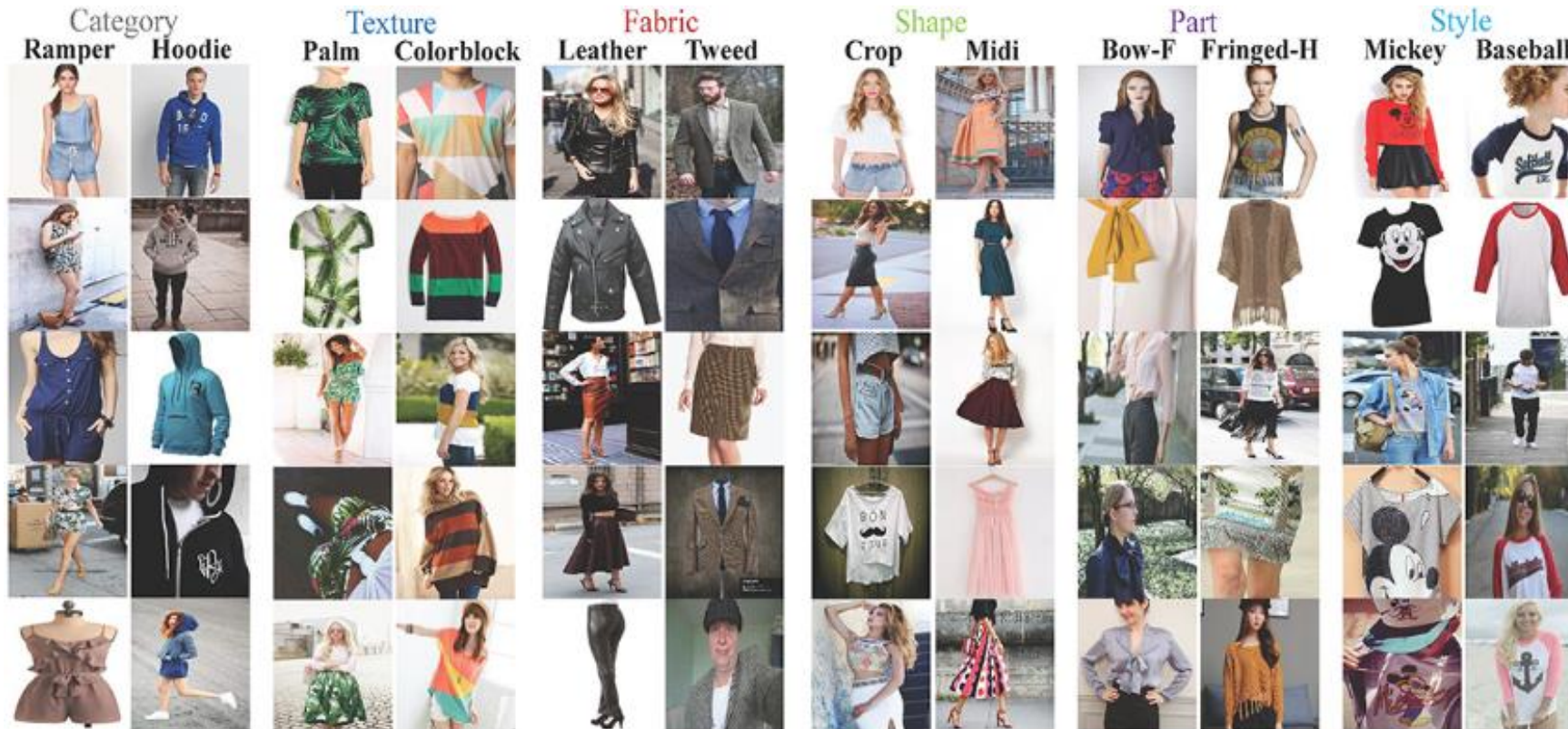
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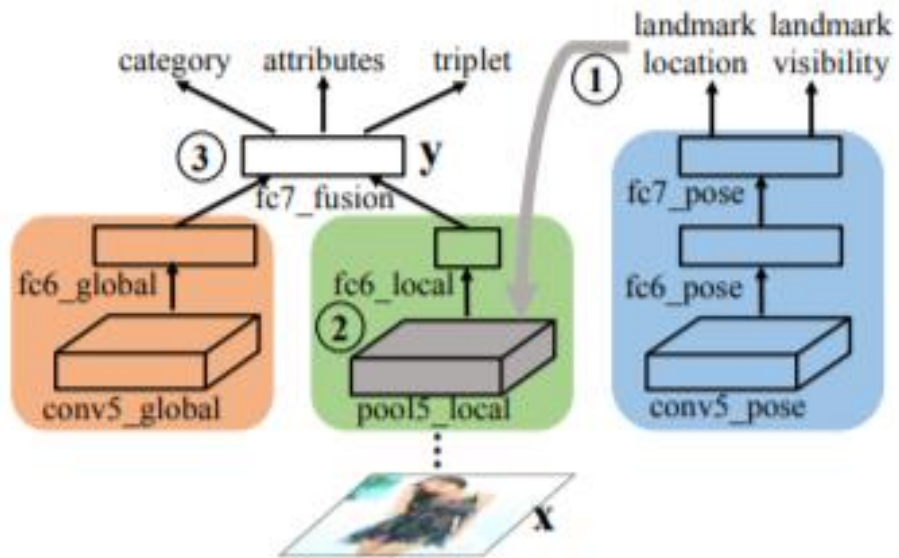
09/25/2019

Problem Statement

Liu Z, Luo P, Qiu S, et al. Deepfashion: Powering robust clothes recognition and retrieval with rich annotations[C] Proceedings of the IEEE conference on computer vision and pattern recognition. 2016: 1096-1104.
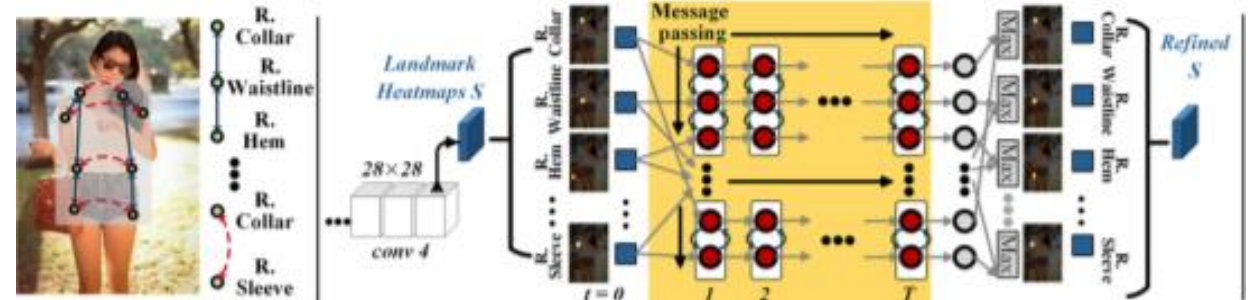
Motivation

- Multi-task Learning on Fashion Recognition

- Knowledge Sharing: When? What? How?

Previous Works

[1] Fashion Net

[2] Wang *et.al.*

[1] Liu Z, Luo P, Qiu S, et al. Deepfashion: Powering robust clothes recognition and retrieval with rich annotations. Proceedings of the IEEE conference on computer vision and pattern recognition, 2016.
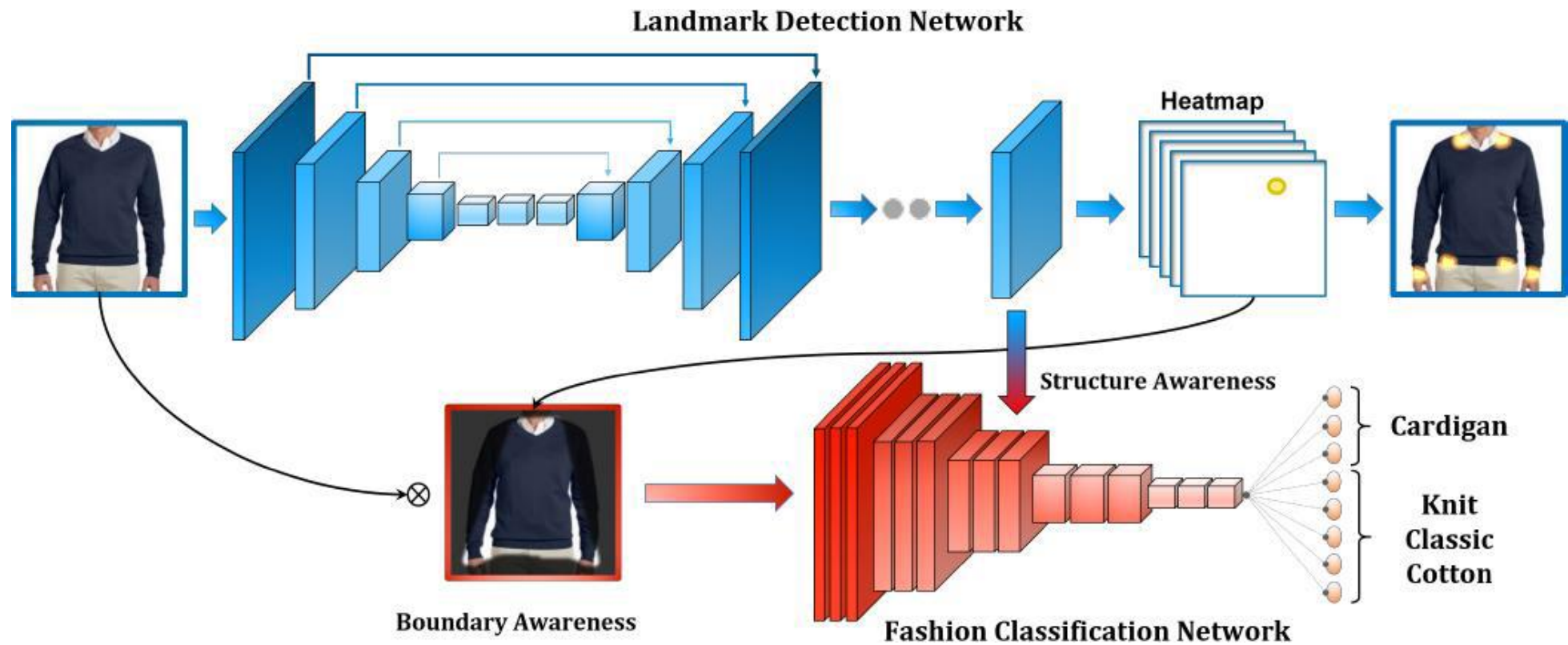[2] Wang W, Xu Y, Shen J, et al. Attentive fashion grammar network for fashion landmark detection and clothing category classification. Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, 2018.

Methodology

- Landmark Detection Network

- Boundary Awareness

- Structure Awareness

Overall Framework

Experiments

Table 1. Quantitative results for fashion recognition on the DeepFashion-C dataset. $\sim$ denotes result unavailable.

Methods	Landmarks Detection	Category		Attribute	
		top-3	top-5	top-3	top-5
WTBI [9]	$\sim$	43.73	66.26	27.46	35.37
DARN [10]	$\sim$	59.48	79.58	42.35	51.95
FshionNet [6]	0.0872	82.58	90.17	40.52	54.61
DLAN [21]	0.0643	$\sim$	$\sim$	$\sim$	$\sim$
Corbiere *el al.* [22]	$\sim$	86.30	92.80	23.10	30.40
Wang *el al.* [12]	0.0484	90.99	95.78	51.53	60.95
Ours	**0.0467**	**93.01**	**97.01**	**59.83**	**77.91**

[9] Chen H, Gallagher A, Girod B. Describing clothing by semantic attributes. European conference on computer vision, 2012.

[10] Huang J, Feris R S, Chen Q, et al. Cross-domain image retrieval with a dual attribute-aware ranking network. Proceedings of the IEEE international conference on computer vision, 2015.

[6] Liu Z, Luo P, Qiu S, et al. Deepfashion: Powering robust clothes recognition and retrieval with rich annotations. Proceedings of the IEEE conference on computer vision and pattern recognition, 2016.

[21] Yan S, Liu Z, Luo P, et al. Unconstrained fashion landmark detection via hierarchical recurrent transformer networks. Proceedings of the 25th ACM international conference on Multimedia, 2017.

[22] Corbiere C, Ben-Younes H, Ramé A, et al. Leveraging weakly annotated data for fashion image retrieval and label prediction. Proceedings of the IEEE International Conference on Computer Vision, 2017.

[12] Wang W, Xu Y, Shen J, et al. Attentive fashion grammar network for fashion landmark detection and clothing category classification. Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, 2018.

Analysis
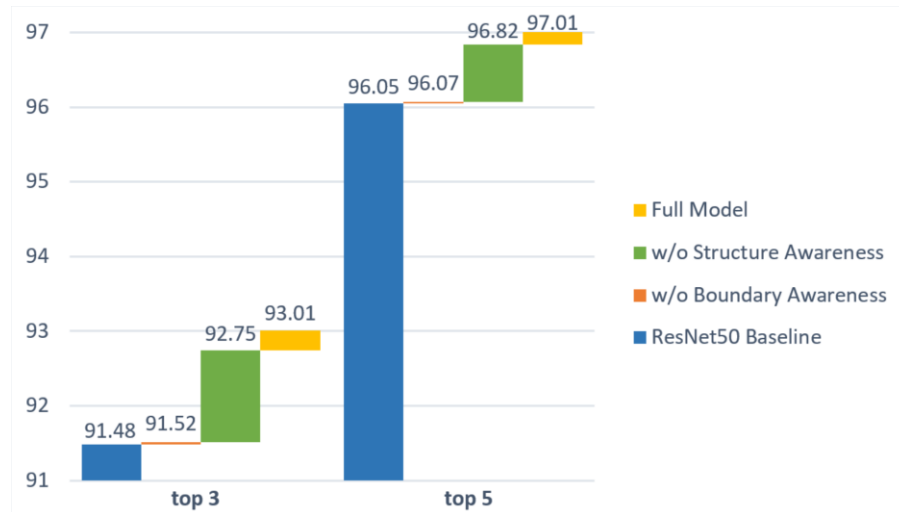
The top-3 and top-5 category accuracy for different baseline networks.

The visualization result for attention map. For each pair of the visualization, the left one is from Wang *et al.*, while the right one is ours.

Wang W, Xu Y, Shen J, et al. Attentive fashion grammar network for fashion landmark detection and clothing category classification. Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, 2018.

THANK YOU

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