Where to Buy It?

Matching Street Clothing Photos to Online Shops

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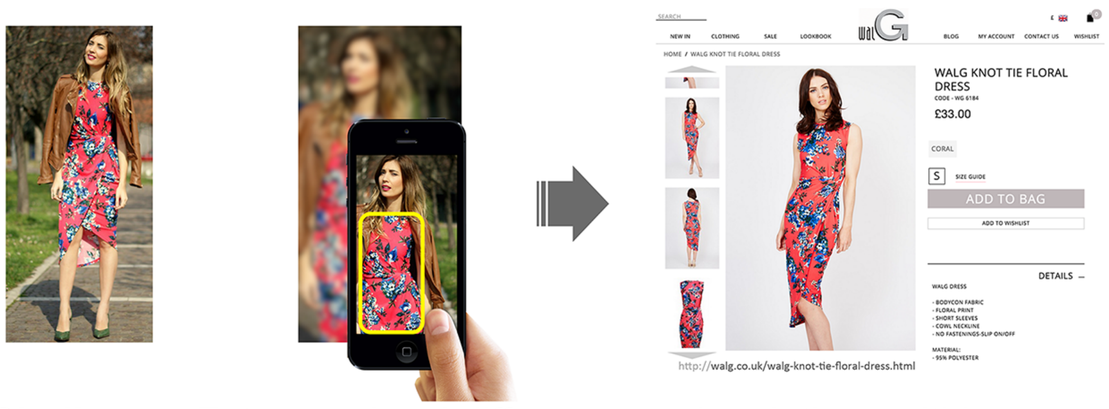
Exact Street to Shop

Our goal is to find the exact match of a garment item, pictured in a real-world photo, in an online shop. This is an extremely challenging task due to visual differences between everyday street photos and online shop photos.

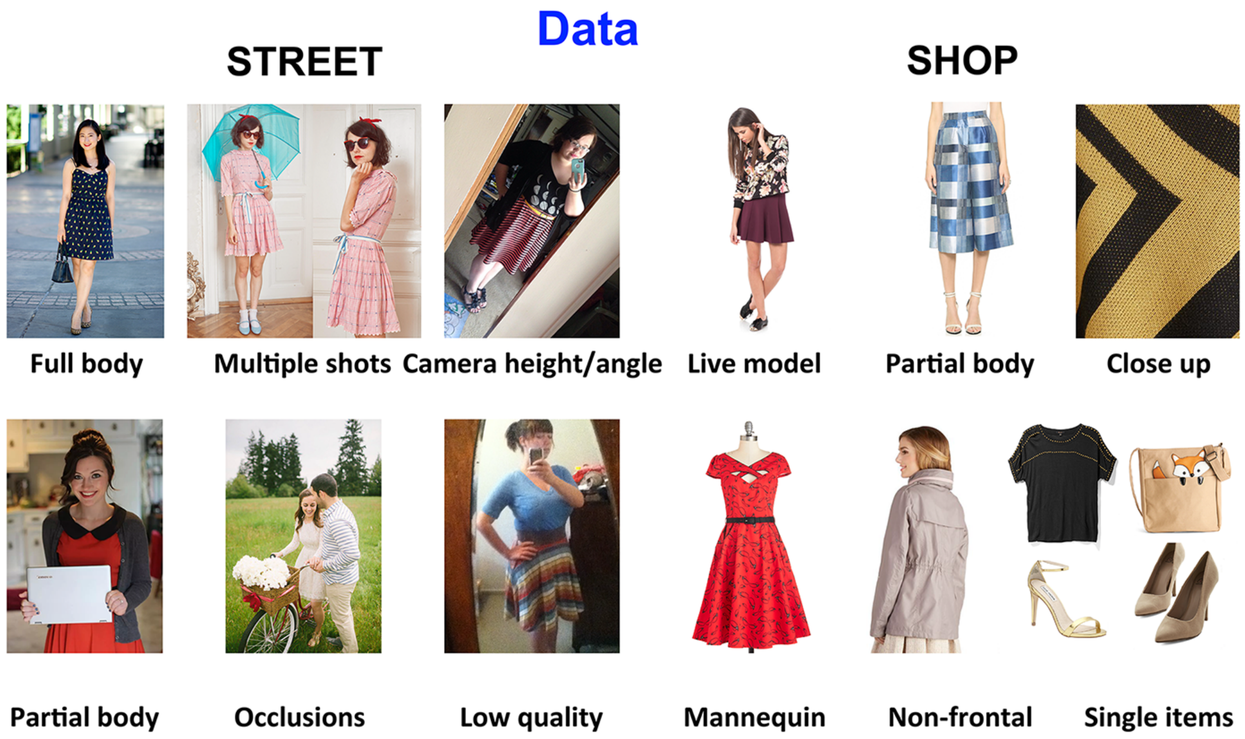


Challenge: Extreme visual difference and variations within and across domains

Contributions:

- Introduction of the Exact Street to Shop task
- Novel large scale dataset for the retrieval task
- Deep learning based similarity learning
- Quantitative and human evaluations

Data

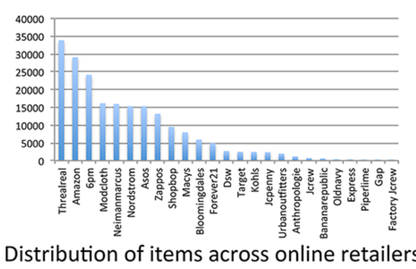


Exact Street to Shop Pairs

Users upload photos of themselves showcasing clothing products

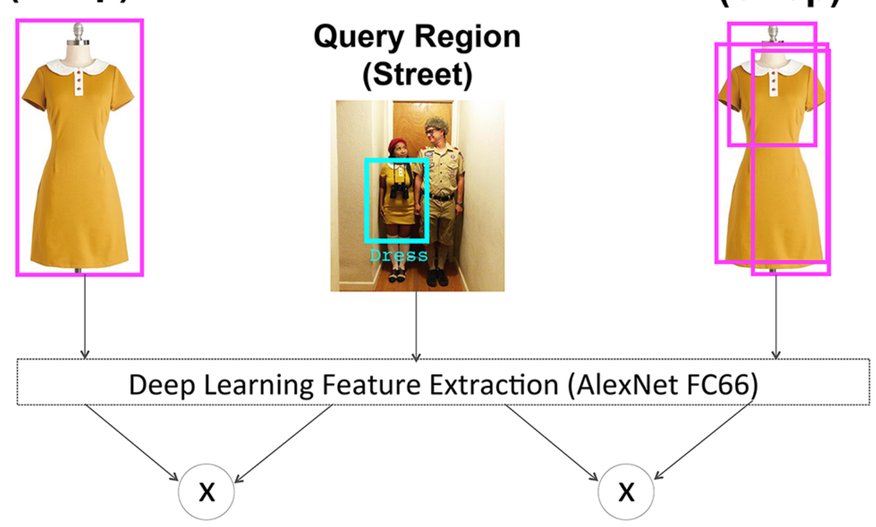
Bounding boxes collected from Amazon Mechanical Turk

20,357	Street Photos
404, 683	Shop Photos
204,795	Shop Items
39, 479	Exact s2s pairs
11	Categories
25	Retailers



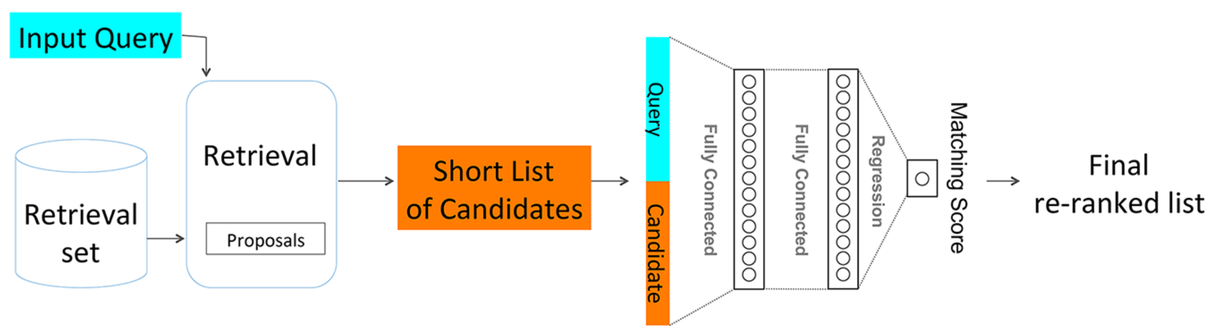
Distribution of items across online retailers

Baselines



Cosine Similarity and rank

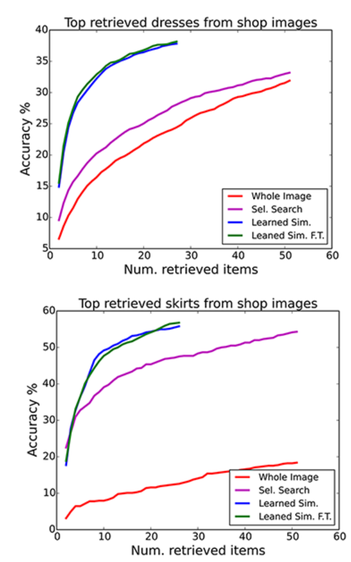
Convolutional Similarity Learning



Retrieval Results

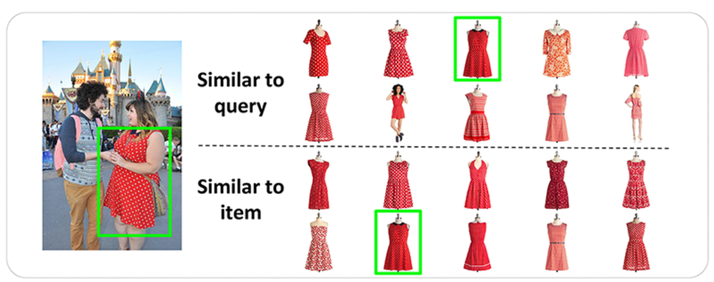
Top-10 Item Retrieval Accuracy

Category	Whole	Proposals	Sim.	Fine Sim.
Bags	23.6	32.2	31.6	**37.4**
Belts	6.7	6.7	11.2	**13.5**
Dresses	22.2	25.5	36.7	**37.1**
Eyewear	10.1	**42.0**	27.5	35.5
Footwear	5.9	6.9	7.7.	**9.6**
Hats	11.6	36.0	24.4	**38.4**
Leggings	14.5	17.2	15.9	**22.1**
Outerwear	9.3	13.8	18.9	**21.0**
Pants	14.6	21.5	28.5	**29.2**
Skirts	11.6	45.9	**54.6**	**54.6**
Tops	14.4	27.4	36.6	**38.1**



Human Evaluation

Can humans find the correct item?



Category	Similar to Query (%)	Similar to Item (%)
Belts	65.5	53.9
Dresses	87.9	69.8
Eyewear	29.6	**42.0**
Footwear	5.9	33.3
Leggings	45.1	29.4
Pants	44.4	37.7
Skirts	69.4	66.6
Tops	78.1	66.1

References

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