

# FashionGraph

## understanding fashion data using scene graph generation



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### Motivation

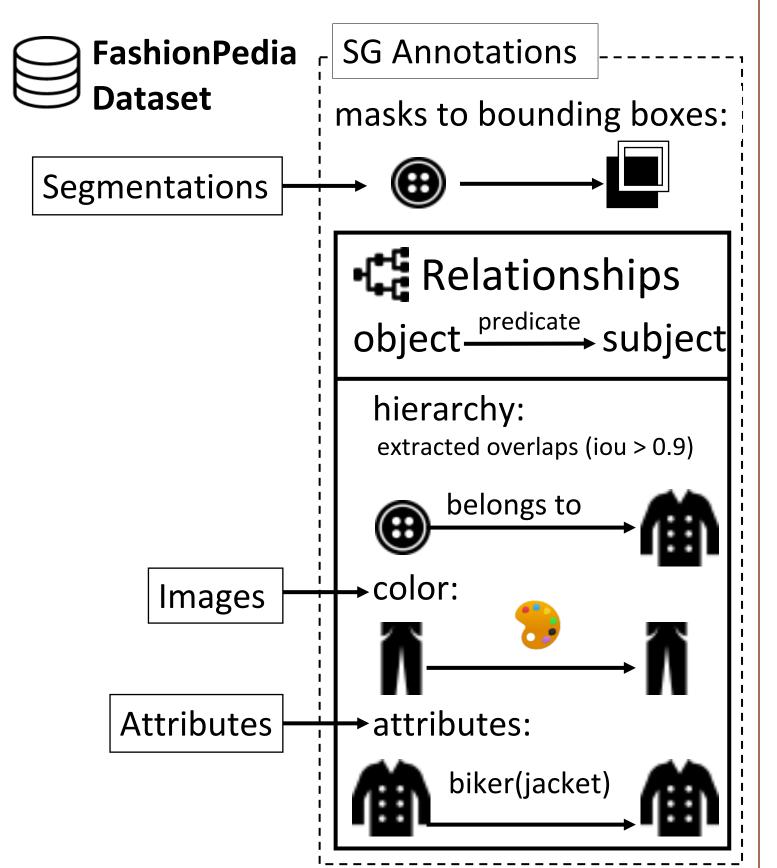
- Brought the idea of scene graphs to fashion images.
  - helps in better understanding of fine-grained fashion data.
- A model to generate fashion scene graphs.
  - Ly using object and relationship detection models.
  - by we generated new annotations for this purpose.
- Integrated the attribute detection into the scene graph model.
- Highlighted the application of SG for fashion image retrieval.

## Data Annotation

We provide relation detection annotations for Fashionpedia dataset[1].

To train a SG generator, we need the following annotations:

- Fine-grained segmentation: bounding boxes and object labels
- Relationships in the format of object, subject, predicate



Relationships for a fashion data include:

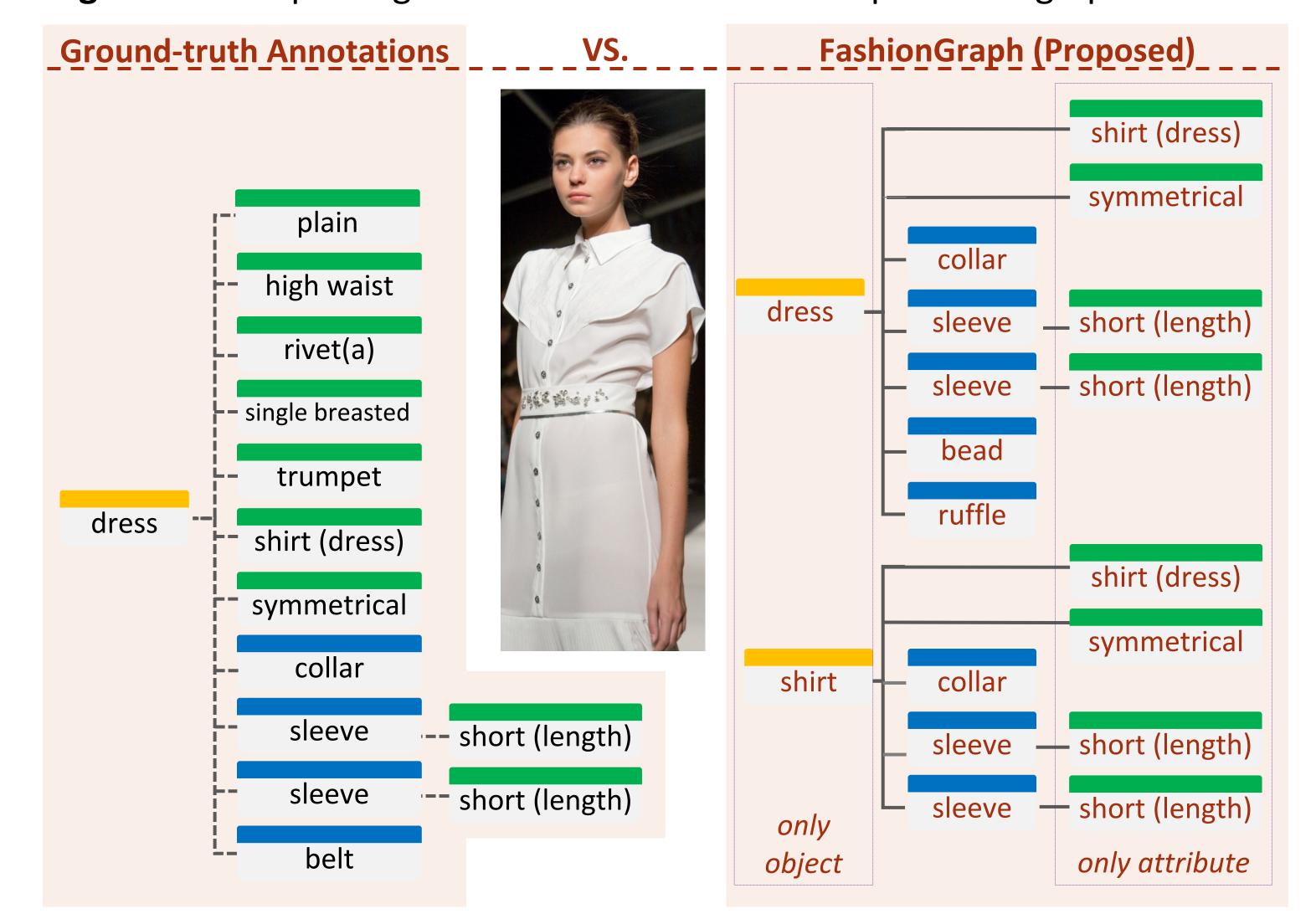
- Hierarchical. E.g. pocket belongs to shirt
- Attributes. E.g. dress is A-line
- Color. E.g. Jacket is blue

#### Architecture Detection Post-processing -----Filter detected relationships if: Object Detection: • $score_{object} \times score_{sbject} < thr_{object}$ ResNeXt (101-64x4d-FPN) • $score_{prd=with} < thr_{with}$ Weights pre-trained on VG • $score_{prd=attr} < thr_{attr}$ Fine-tuned on Fashionpedia SG Detection: RelDN[2] (ResNext) Trained on our rel. annotations \*attr3 subject bbox/score relationships object bbox/score predicate scores metrical ngle breasted

#### **Table 1.** RelDN[2] on Visual Genome vs. FashionGraph on Fashionpedia

Method	Dataset	R@20	R@50	R@100
ReIDN[2]	Visual Genome	23	31	37
FashionGraph	Fashionpedia	18	22	24

Figure 1. Example of ground-truth annotations vs. predicted graph



## Application: Image Retrieval

- To rank the images for a given query image, we represent the predicted scene graph by four matrices:
  - Objects
  - Hierarchical relationships
  - Attributes
  - Colors
- Then we calculate the cosine similarity of each type between the images and the query.

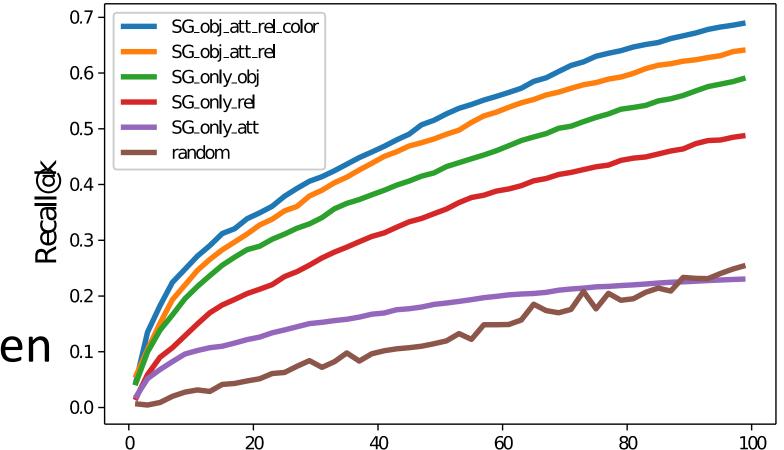


Figure 2. Qualitative evaluation on fashion image retrieval



## Contact

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### Code

https://github.com/shabnamsadegh/FashionGraph





## References

[1] Jia, Menglin, et al. "Fashionpedia: Ontology, Segmentation, and an Attribute Localization Dataset." arXiv preprint arXiv:2004.12276 (2020).

[2] Zhang, Ji, et al. "Graphical contrastive losses for scene graph parsing." Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition. 2019.