**Motivation**

>> Fashion retrieval has attracted a lot of interest lately. Many successful commercial systems have been running fashion search. However, text based methods easily underperform when users search for products with rich details that are hard to comprehensively describe. Image based method also run into roadblocks when users want to modify certain details.

>> We propose to learn explicit representations for fashion products by leveraging domain knowledge organised in an Exclusive & Independent Tree (EI Tree). By building sub-EI trees from product representations, the similarity between products becomes similarity of sub-EI trees, which is more coherent to human perception.

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**Explicit Representation**

>> Exclusive & Independent Tree (EI Tree)

* Exclusive relations
  - e.g. red, black, yellow
* Independent relationships
  - e.g. bow, ruffle
— handles the relationships between categories and attributes of fashion items, captures domain knowledge.

>> Attention localisation & EI Tree

>> Usage of explicit representation

— explicit fashion retrieval
— attribute / category manipulation
— retrieval feedback
— data augmentation

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**Explicit Distance**

>> Similarity of sub-EI trees

With explicit vector representation, the similarity metric is no longer the ones such as Euclidian distance which assumes dimension independence.

-- Similarity of sub-EI trees leverages domain knowledge
-- Easier to explicitly incorporate user preference

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**EI Tree Example**