Large Scale Visual Recommendations from Street Fashion Images

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Visual Recommenders – Context Based

What goes well with navy blue denim jeans?
This work addresses the estimation of “good” clothing combinations?
An Overview

**Similarity Search**

2. Dataset

**Co-ordination Search**

1. Query [Pant] → Query Mapper
2. Query Mapper [Shirt] → Similarity Search → Retrieval Set
2. Dataset
Some combinations simply work
While others ….. not always
Learning “Good” Clothing Combinations from Visual Data

Street Fashion Blogs

Celebrity Clothing Styles

Fashion Shows

Social Networks
This work focusses on Street Fashion Images.
Learning Phase

Goal is to estimate $P(a_1, a_2, a_3)$
Test Scenario

Goal is to estimate $a_1^* = \arg\max_{a_1} P(a_1, a_3 | a_2)$
We propose a suite of algorithms, namely Deterministic Fashion Recommenders (DFR) and Stochastic Fashion Recommenders (SFR).

DFRs are pretty rigid while SFRs have flexibility through randomization.
Subjective Evaluations

Retrievals rated on a scale from 0-3 by multiple human subjects

Only queries on which there is sufficient agreement retained for evaluation
Performance

Deterministic Recommenders perform best on solid queries

Stochastic Recommenders perform best on solid queries

Hybrid Recommenders perform best overall
Solid vs Patterned Query

For patterned queries users like solid retrievals

Raters tend to agree more on patterned queries

However the message from agreement is patterned queries can do better!
Insight into patterns

Simple patterns easier to get right

Simple patterns are quicker to rate too!
Conclusion

• Techniques for data driven visual recommendations
• Idea is to leverage scale of available visual datasets on the web
• Subjective experiments validate capability of algorithms proposed
• Ample scope for enhancing the fashion parsing, and retrieval systems
THANK YOU