A Real-time Fashion Recommendation System

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Introduction

We propose a practical system for real-time fashion recommendation. Given a user-provided clothing item (e.g. skirt, vest, boots), the system can propose real-time fashion solution recommendations. To alleviate the interference of clothing items, we adopt parsing and store upper-body, lower-body, and shoes into the database.

We leverage classification to recognize the category of the query item. In accordance to the cut input, we first classify the category of the input, after which, image retrieval is yielded resorting to the k-d tree. Garments combinations are recommended afterwards. Experimental evaluations on testing images of great diversity indicate the effectiveness of our proposed system. Besides, our system yields superior performance compared with many commercial fashion recommendation system and image search engine.
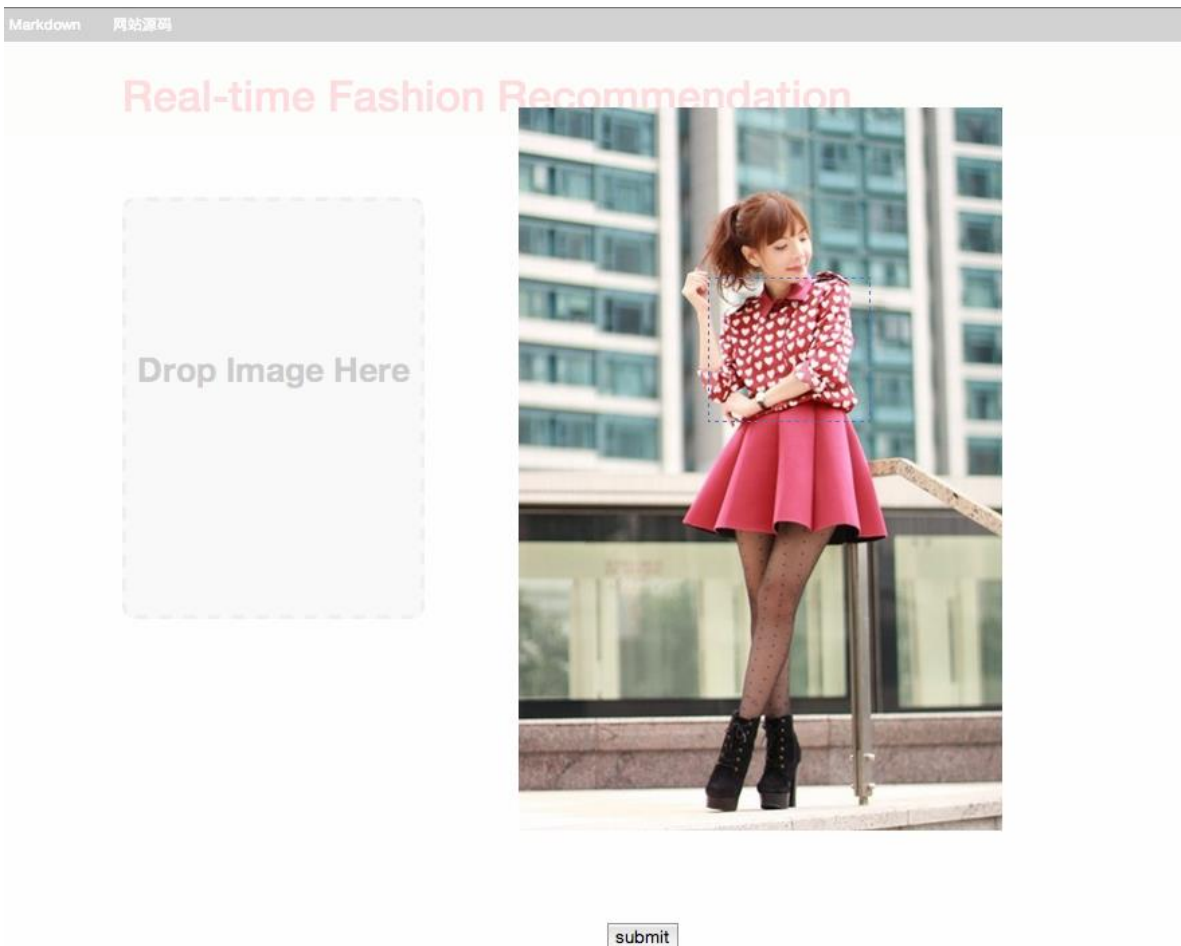
Overview

Feature Construction
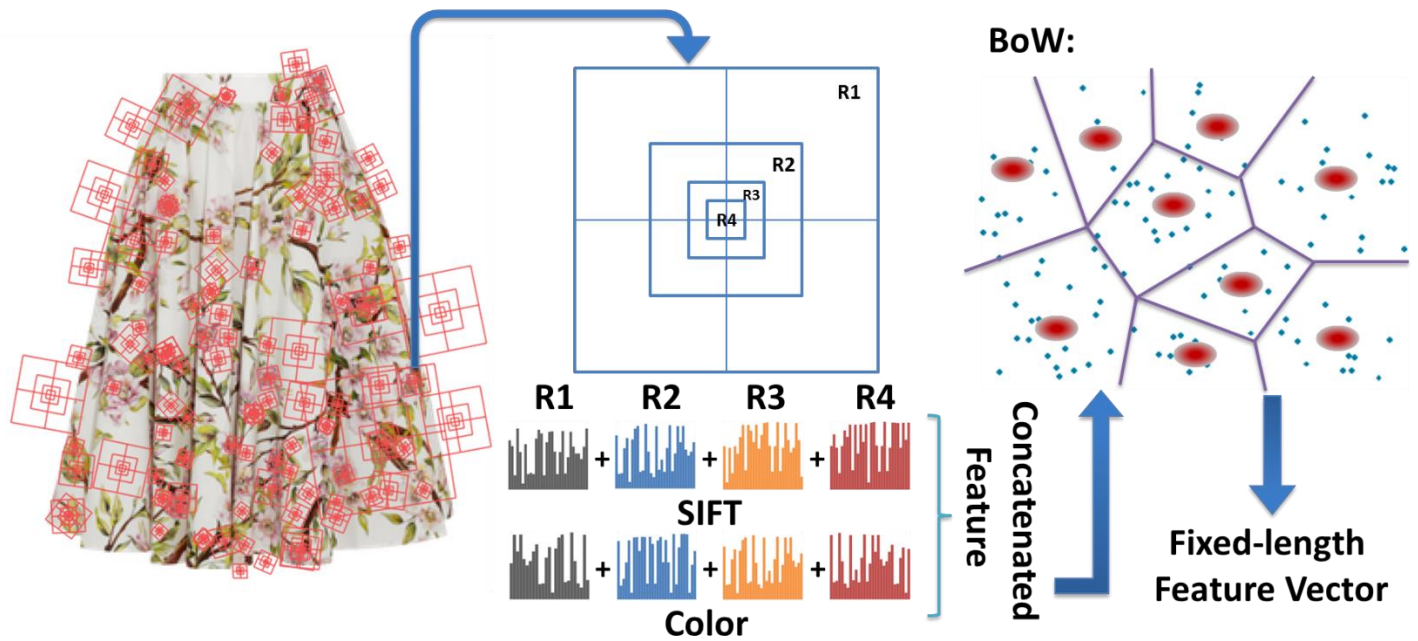
❖ Scale-invariant feature transform (SIFT) detector
❖ adapted with Opponent Color Space descriptor
❖ Quantization with Bag-of-Words (Bow) model

User Interface

Evaluation

Matching results score (RS) equation :

$$RS = \sum_{k=1}^{K} C_k \cdot \frac{1}{k},$$

$$\text{where } C_k = \begin{cases} 1 & \text{if matching satisfied} \\ 0 & \text{otherwise} \end{cases}$$

System	Clothes	Pants	Shoes
Baseline	0.325	0.262	0.318
	±0.512	±0.490	±0.477
Huang et al. [11]	0.310	0.295	0.333
	±0.511	±0.504	±0.483
Google Image [2]	0.500	0.143	0.095
	±0.612	±0.359	±0.301
O Sha'Re [1]	0.545	0.625	0.091
	±0.650	±0.569	±0.302
Our system	0.917	0.792	0.524
	±0.561	±0.763	±0.666

Table 1: Score Comparison

Our system gives promising result compared with other systems in terms of clothing matching performance

Conclusion

We implemented a novel and practical real-time fashion recommendation system. Based on the parsed database and a pre-processed multi-class SVM, our system can propose clothing collocation solutions based on the input garment on they. To specify the input and evite the background clutter, we propose a user-friendly interface as well. Experimental results indicates the efficiency and superiority of our system.