Fashion Item Retrieval

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Motivation & Introduction

- Motivation
  - Customers - shop fashion items similar to celebrities’ photos
  - Retailers - recommend fashion items similar to customers’ wearing
- Introduction
  - Goal - given a person image, for each fashion item in it, retrieve similar fashion item images from the database
  - Uniqueness – scene-independent, color-independent

Proposed Method

- Two-stage framework
  - First stage – fashion item detection
    - Coarse detection
      - Upper-clothes, bottom-clothes and onepieces
    - Fine classification
      - Sweaters, dresses, T-shirts, etc.
- Second stage – fashion item retrieval
  - Pre-train StyleNet using data with color-independent category labels
  - Fine-tune StyleNet using data with attribute labels

Data Collection

- Forever21.com
  - ~10k catalog images
  - Description in sentences
  - No keywords available
- SheIn.com
  - ~3k catalog images
  - Description in keywords
  - Semantically grouped keywords available
- Combination of Forever21 & SheIn
  - Select desired keywords from SheIn as labels
  - Build dictionary using selected keywords
  - Find similar keywords in Forever21’s sentences and extract them as labels

Experiments

<table>
<thead>
<tr>
<th>Table 1: fashion item detection accuracies</th>
<th>Figure 1: fashion item detection visual example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes</td>
<td>Top-1</td>
</tr>
<tr>
<td>Upper</td>
<td>59.2%</td>
</tr>
<tr>
<td>Bottom</td>
<td>76.3%</td>
</tr>
<tr>
<td>Onepiece</td>
<td>77.7%</td>
</tr>
</tbody>
</table>

Query Retrieval results

- Pose-invariance
- Fashion images in the wild
- Cross-domain retrieval