Image style embedding based fashion recommendation system

Team: MEBO

Inspiration

Fashion retailers have a tough job of selling products without knowing the customers

Retailers have limited customer data (transactions and preferences) to make recommendations

COVID has fast-tracked ecommerce adoption by decades

[Total online spending in May 2020 hit $82.5 billion, up 77% year-over-year]

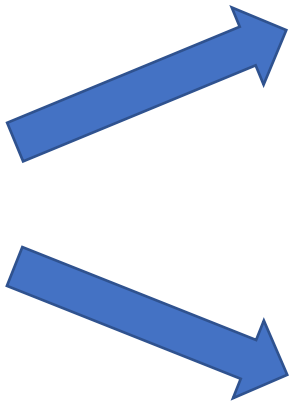
Retailers risk losing the customer to another website if they don't see the right product

Proposition

- A cold-start solution
- No historical data needed
- Based on item features

Customer clicks on a product

Eg – a shirt



Recommends Similar Products

Eg – other shirts you might like

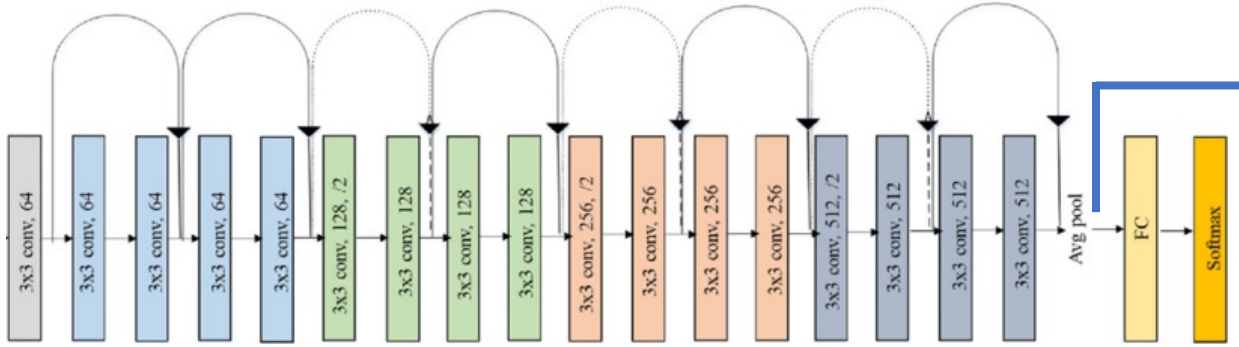
Recommends Complementary Products

Eg – Pants, glasses, shoes that will go with the shirt

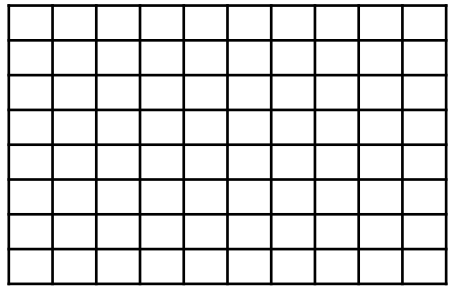
Recommend Similar Products - Methodology

1 Extracting style embedding for the entire image database

Image database



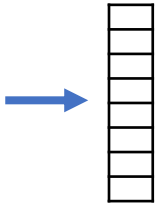
Pretrained ResNet18 model



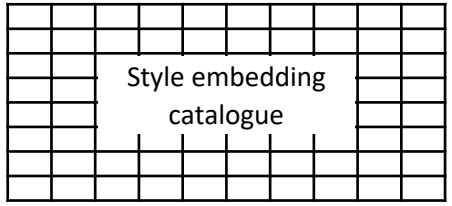
Extracted style embedding catalogue

2 Match query image embedding with the database to get top 5 similar images

Query image



Embedding from Resnet18



Run cosine similarity between query image and catalogue

Top 5 similar products

Recommend Similar Products - Results

Query image

Top 5 similar images

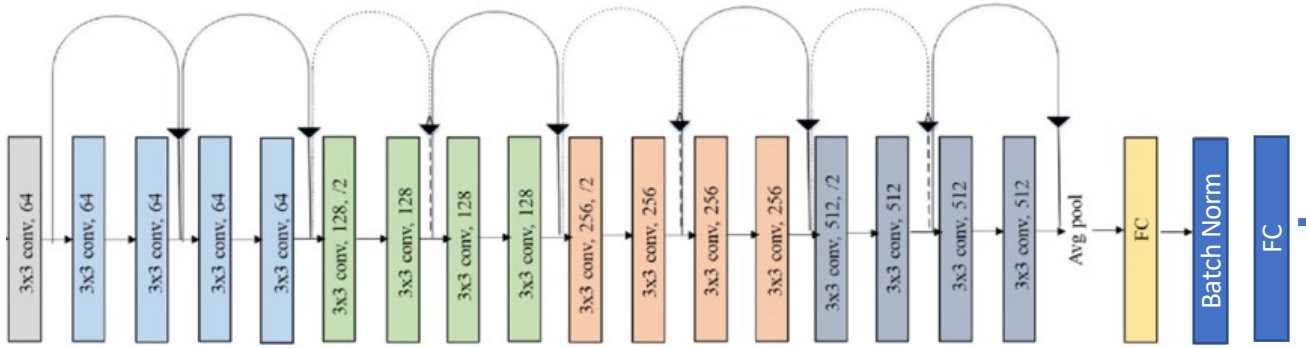
Query image

Top 5 similar images

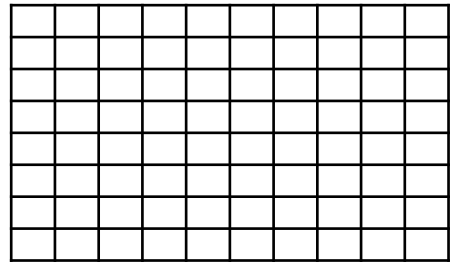
Recommend Complementary Products - Methodology

1 Extracting style embedding for the entire image database

Image database



Modified ResNet18 model



Extracted style embedding catalogue

2 Model training using triple loss

Anchor image 

Positive image 

Negative image 

Get image embeddings using the Modified Resnet-18

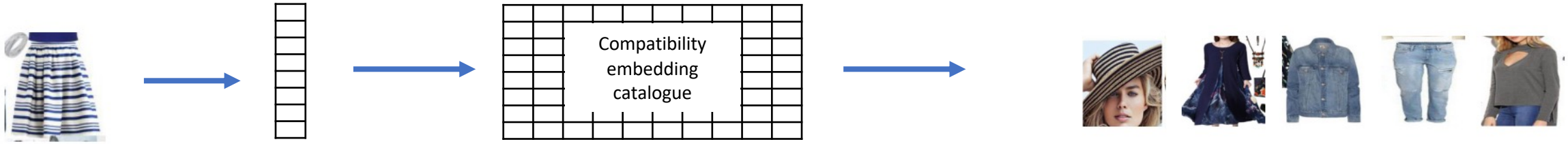
Retrain Modified ResNet18 to learn image compatibility

Minimize triple loss

Get compatibility trained ResNet18

Recommend Complementary Products - Methodology

3 Match query image embedding with the database to get top 5 compatible images



Query image

Embedding from compatibility trained Resnet18

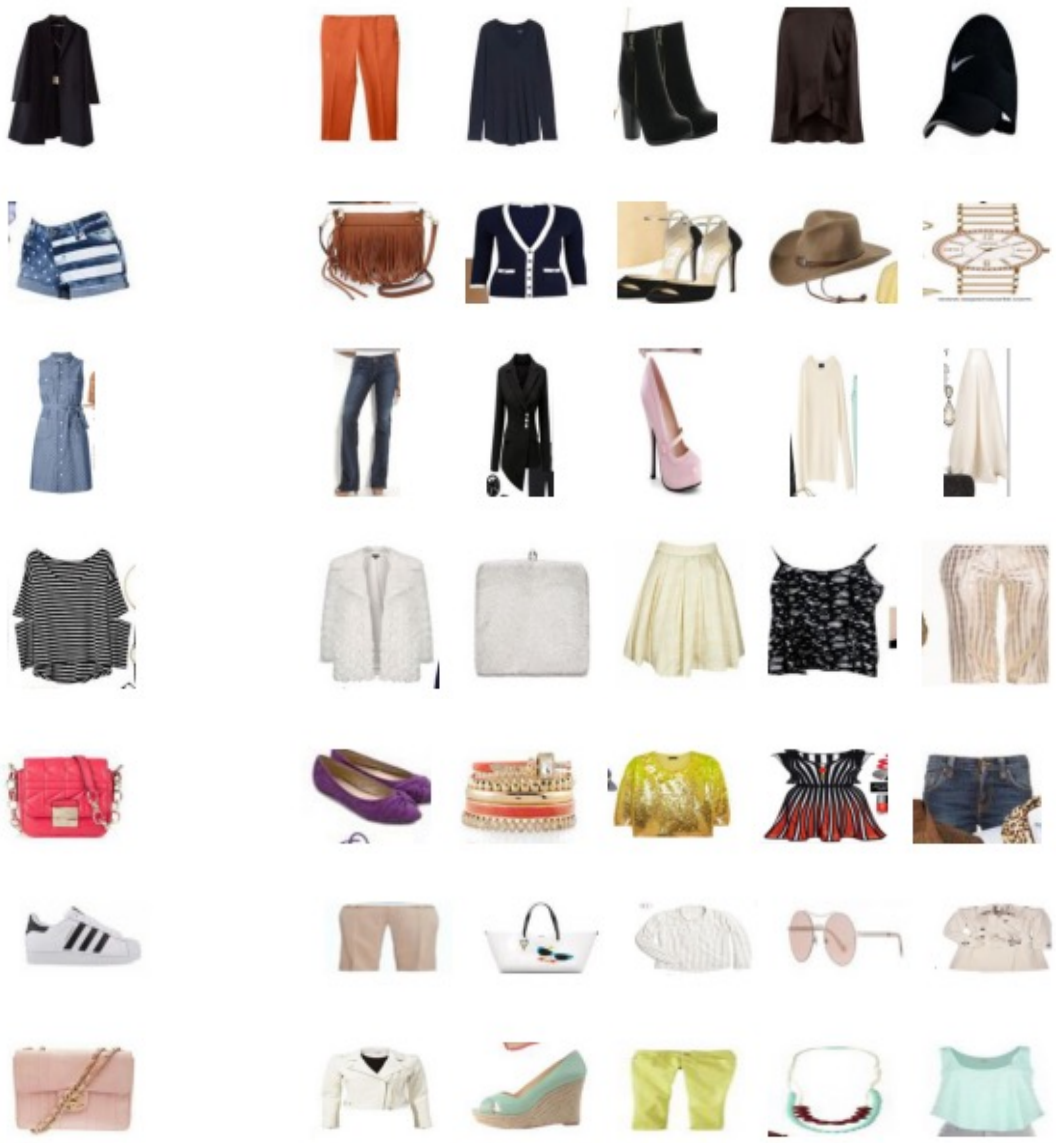
Run cosine similarity between query image and catalogue

Top 5 compatible products

Recommend Complementary Products - Results

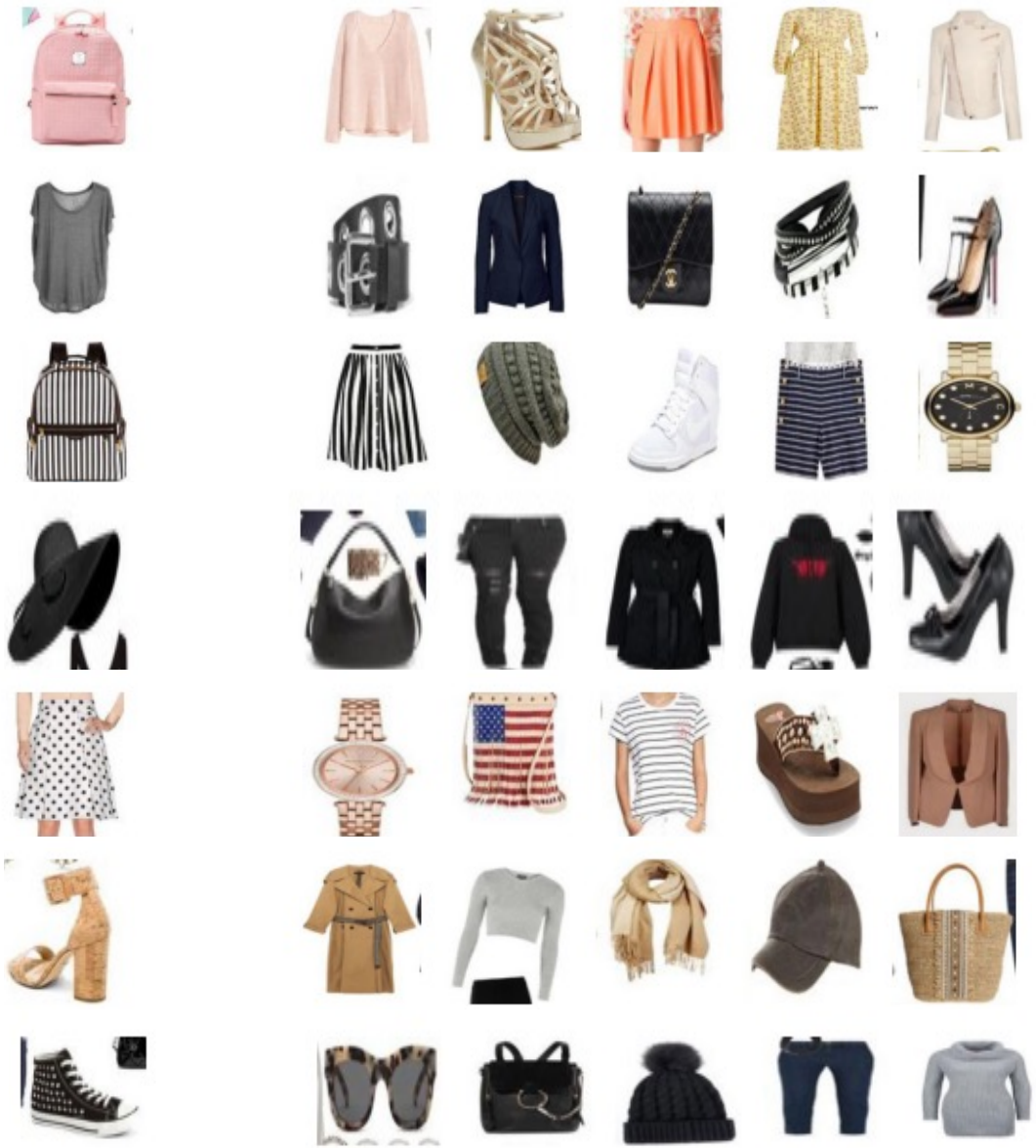
Query image

Top 5 complementary images



Query image

Top 5 complementary images



Recommend Complementary Products - Results

Query image

Top 5 complementary images