Fashion Brand Engagement via Image Analytics

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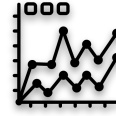# Agenda

Business Problem — **Web Scraping & Data Cleaning** — **Topic Modeling** — **Predicting Engagement** — **Conclusions**

Business Problem

How to drive social media engagement on Instagram for *fast-fashion* brands?

Why this problem? Why H&M and Zara?

- **$872BN** Projected size of the global online fashion market by 2023
- **74%** of consumers rely on social networks to help them make purchase decision
- **69%** of fast-fashion marketers plan to spend more on Instagram marketing than other platforms in 2021
- **60%** of users discover new products using Instagram
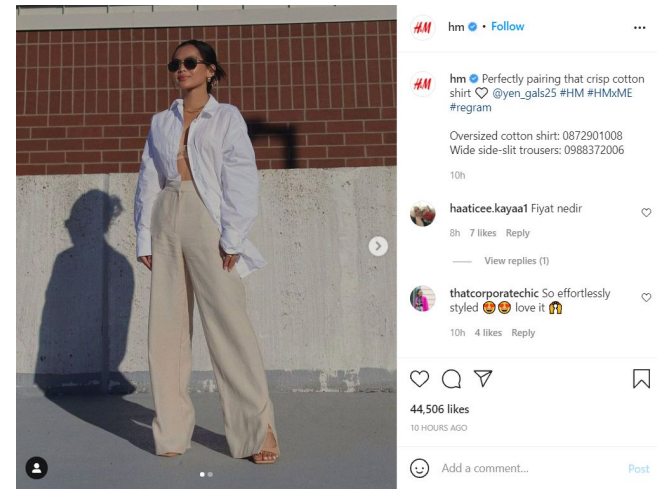
Data Aggregation

Instagram   **Fashion Brands**   **Google's Image Analytics API**

Parent   Men

Topic modeling - Latent Dirichlet Allocation (LDA)

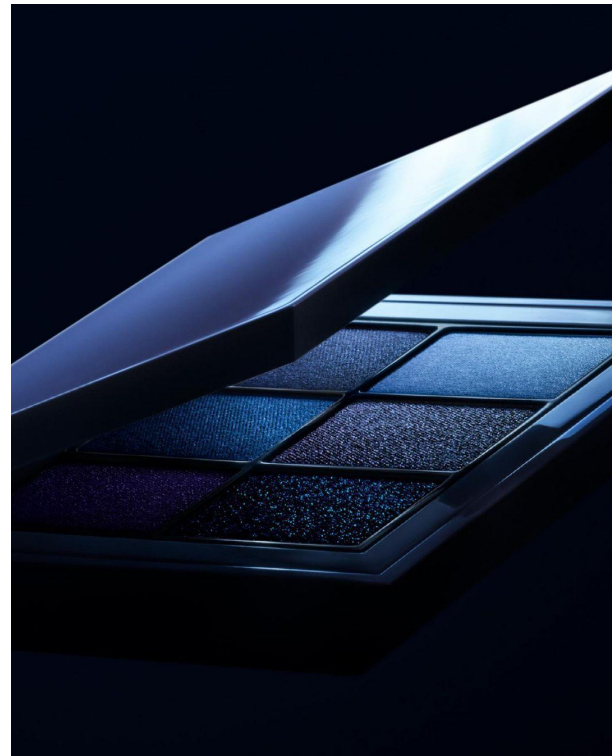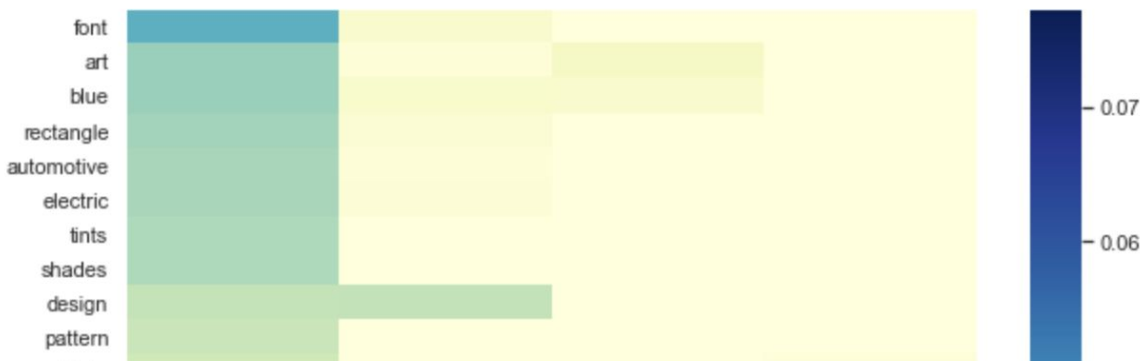**What works well for brands with high Instagram engagement?**

ZARA : 47M followers

H&M : 37M followers

Parent Page's Topics

<u>Cosmetics</u>

Key Labels
- Art
- Tints
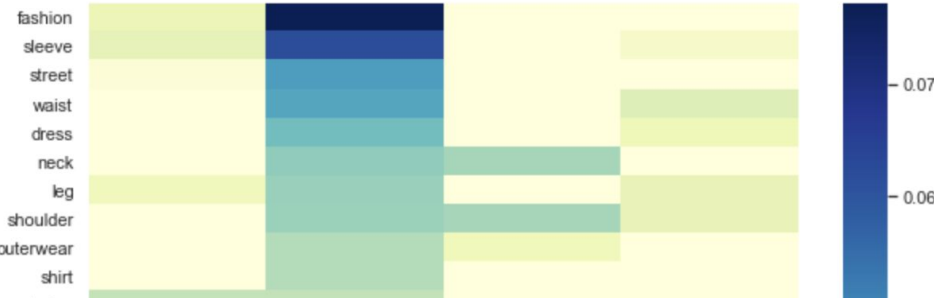- Design
- Pattern

Parent Page's Topics

<u>Sexy</u>

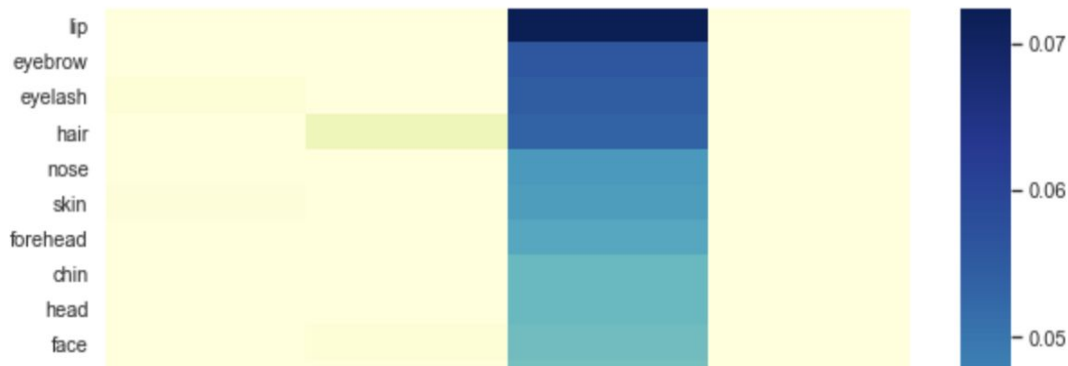### Key Labels
- Waist
- Leg
- Dress
- Shoulder
- Neck
- Sleeve

Parent Page's Topics

Face

Key Labels
- Lip
- Eyebrow
- Eyelash
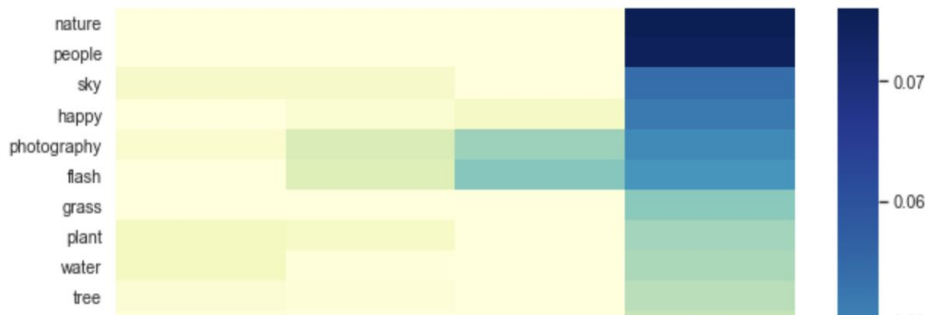- Chin
- Hair
- Chin

Parent Page's Topics

<u>Sustainable</u>

Key Labels
- Nature
- People
- Sky
- Grass
- Plant
- Tree

Topic modeling - Latent Dirichlet Allocation (LDA)

Is there a different engagement strategy for men's wear?

ZARA Man : 567K followers

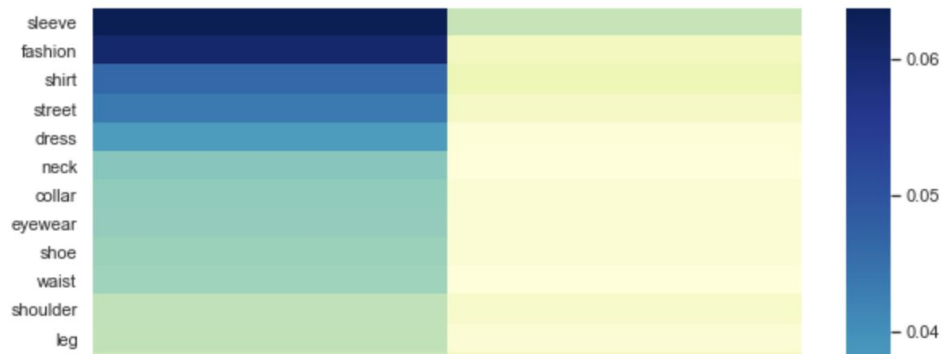H&M Clothes for men : 2.2M followers

Mens Page's Topics

Swag

Key Labels

- Street
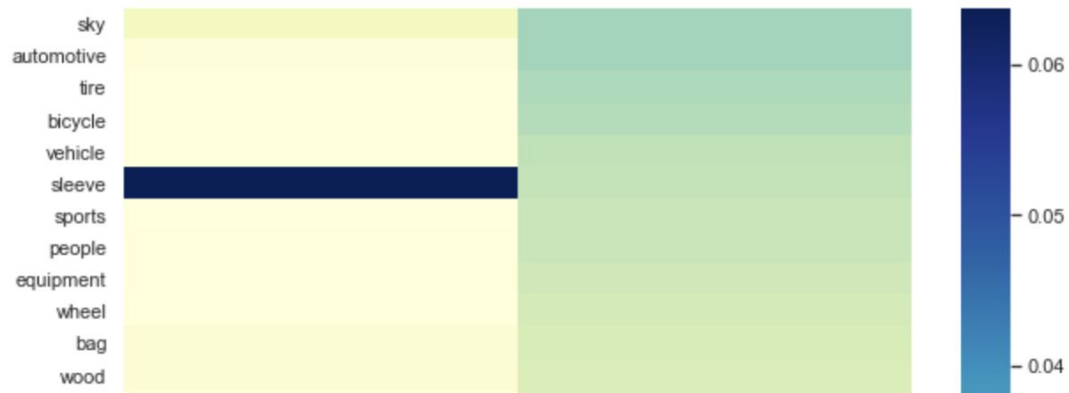- Eyewear
- Fashion
- Shoe
- Collar
- Sleeve

Mens Page's Topics

Athletics

Key Labels
- Bicycle
- Sports
- Bag
- Equipment
- Tire
- Automotive

How are Parent vs. Men's pages driving the engagement differently?

ZARA H&M versus ZARA Man H&M Clothes for men

These are the images with highest Engagement Score

Engagement Score = **(Normalized Comments) 60%** + **(Normalized Likes) 40%**

*Greater than 50% of median value, then 1, else 0

Posts with highest engagement - What are they about?

Instagram Page	Topics	Average association
Parent Page	1. Sexy	60%
	2. Cosmetics	17%
	3. Nature	13%
	4. Face	10%
Men's Page	1. Swag	80%
	2. Athletic	20%

Why a sudden focus on nature/life/organic?

Zara goes sustainable with new Join Life initiative

H&M, Zara, and other fashion brands are tricking shoppers with vague sustainability claims

A new report on H&M underscores how companies mislead the public by failing to provide adequate detail on their environmental initiatives.

Did it work?

Among lowest engagement quartiles

Ahaa…?

Predicting Instagram Engagement

Will the next Instagram post of

ZARA *H&M*

have high engagement?

Regression Analysis (including PCA)

Model description:

Predictors: TF-IDF word vector (from output of Google Image Analytics)
Response: Engagement score (1 >= median value of calculated engagement score,
0 < median value of calculated engagement score)

# Features	Captions	Labels	Labels & Captions
Before PCA	2407	515	2760
After PCA	400	250	430
Accuracy	**63%**	**60.4%**	**67.3%**

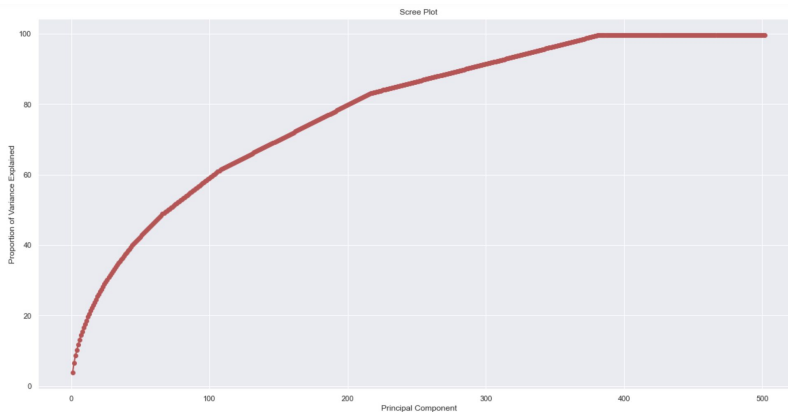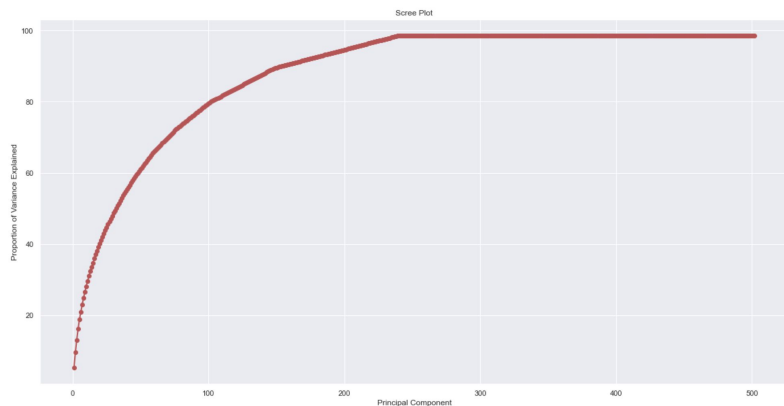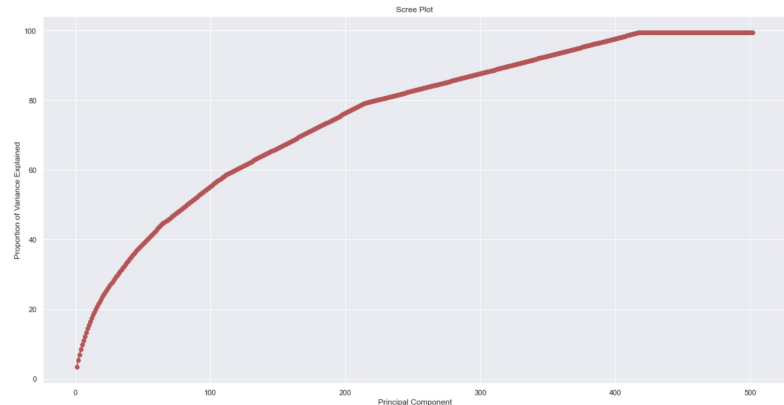# Scree plots for choosing #features in PCA

Fig 1: Scree plot for **labels** (n = 250)

Fig 2: Scree plot for **captions** (n = 400)

Fig 3: Scree plot for **labels + caption** (n = 430)

Conclusion

- Top topics for fashion brands with high Instagram engagement:

    - Parent fashion brands (Sexy, Cosmetics)

    - Men's fashion of these parents (Swag)

- To predict whether the next Instagram post of these brands will have high engagement:

    - Labels and Captions model has the highest model accuracy of 67.3%

What next...

Identify what topics can be focussed on by brands which have lower Instagram

engagement (Forever 21 - 14.5M followers, UniQlo - 2M followers)