

Multimodal Brand Equity Analysis in Social Media

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Problem Statement

Users broadcast their opinion about brands in Instagram by posting images and text



Research question:

- What aspects of posts determine the equity of a brand in multimodal social media and how to detect it automatically?

Motivation

Brand equity is a network of strong, positive and unique brand associations in the minds of consumers and is considered to be one of the cornerstones in marketing

- Brand are built by consumers, not companies, so brand equity is built by users
- The favorability of brands from user perspective influences the equity of the brand, but the message is implicitly encoded in the content

We propose a method for extracting the favorability of brands in users' posts

Goal:

- Join optimization of favorability analysis from textual and visual channels in a post
- Computing brand equity by analyzing favorability of brands in users' posts

Related work

Marketing perspective

- Brand equity is traditionally measured either through interviews or surveys
 - Multiple measurements and scalable samples therefore are difficult to obtain
- Brand equity by focusing on strong, positive, and unique associations
 - Don't consider what the associative structure of brand are
- The impact of visual information in brand equity studied from advertising view
 - Don't consider the impact of visual information in brand equity from user-based view

We propose a multimodal approach to automatically create a measure for brand equity based on the visual and textual associations in social media posts

Multimedia perspective

- Image popularity in terms of popularity score definition
 - Image views, reshares, number of comments, mean views over a period
- Employ binary classifier over content and context features
- Consider visual cues in popular and unpopular images in the ranker
- Sentiment description of images for image popularity

We propose to jointly learn sentiment from visual and textual information for brand equity analysis

Framework of Our Proposal

Brand detection



Favorability analysis



Table for collecting <brand, favorability> pairs of test set

```
<McDonald, Sad>
<McDonald, happy>
<McDonald, neutral>
<McDonald, sad>
<McDonald, sad>
<McDonald, neutral>
<McDonald, happy>
<McDonald, happy>
<Shakeshack, sad>
<Shakeshack, happy>
<Shakeshack, neutral>
<Shakeshack, sad>
<Shakeshack, sad>
<Shakeshack, happy>
<Shakeshack, happy>
<Shakeshack, neutral>
<Shakeshack, happy>
<Shakeshack, happy>
<Shakeshack, neutral>
<Shakeshack, happy>
<Shakeshack, sad>
<Shakeshack, happy>
<Shakeshack, happy>
```

Brand equity score

$$P_{Brand} = \frac{1}{N_{Brand}} \sum_{i=1}^{N_{Brand}} S_i$$

N_{Brand} : number of detected brands in the test set
 $S_i \in [-1, 0, 1]$ is the emotion value for i^{th} instance of brand
 happy: 1, neutral: 0, sad: -1

Brand equity by analyzing its product



Temporal analysis of brand equity

