Decoding the Impact of Influencers' Sponsored Content and Tactics on Fostering Electronic Word-of-Mouth (eWOM) in Social Commerce

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SI699 Mastery Course - Big Data Analytics

INTRODUCTION

Social media influencers, especially on Instagram, shape consumer behavior in the realm of social commerce. With the rise of electronic word-of-mouth (eWOM), understanding influencers' impact is vital for brands. Our study delves into sponsored posts, analyzing engagement metrics and content features to optimize marketing strategies.

RESEARCH QUESTIONS

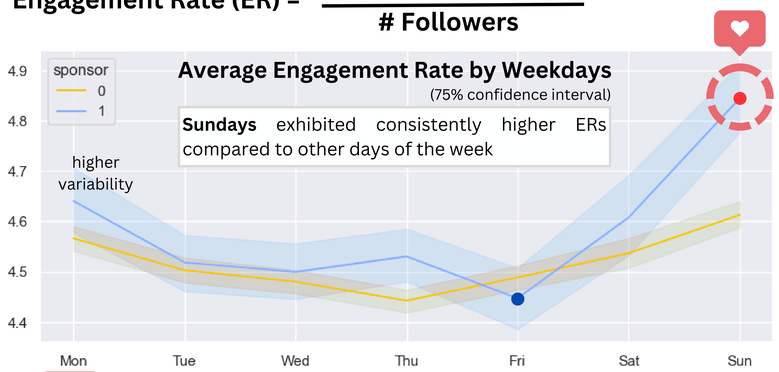
- How does the presence of sponsored content by influencers on Instagram affect electronic word-of-mouth (eWOM) dynamics in social commerce?
- What are the key factors, including follower count, engagement rate, and industry relevance? Can we predict the popularity of the post?

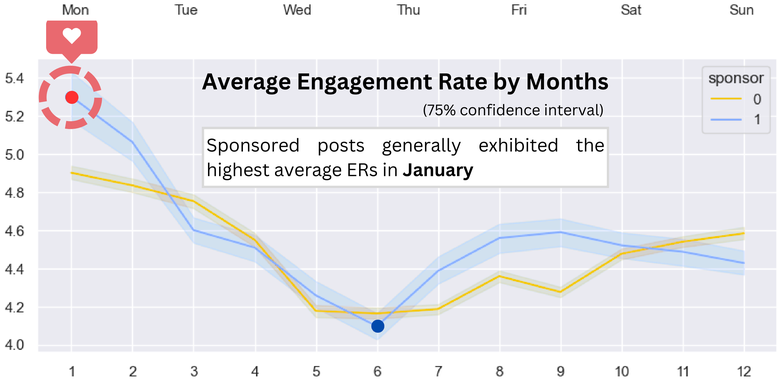
DATA / EXPLORATORY DATA ANALYSIS

This dataset comprised information on **1,601,074 Instagram posts from 38,113 influencers**, including username, #followers, #posts, sponsor, image_files, post_timestamp, likes, comments (count & content), caption, hashtags, etc. Time period: 2012-2019.

Target

Engagement Rate (ER) = $\frac{\text{\# Likes + \# Comments}}{\text{\# Followers}}$





METHOD

Text Analysis

Supervised Text Learning Model

Top3 ER prediction models

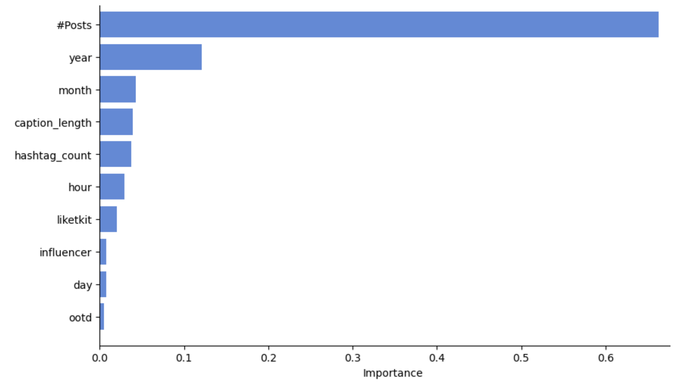
- Random Forest performs the best prediction validity on selected features and ERs

	Mean Squared Error
Random Forest (Tuned)	**0.0012**
Random Forest (Untuned)	**0.026**
XGBoost Regression	**0.034**

Features significatly related to post popularity

Post Count of the influencer is **MOST IMPORTANT** features in ER Prediction. The **post uploaded year/month** and **caption length** are also important in our model.

Feature Importance on Predict ER



Hypothesis Test on Effect of Sponsorship

Sponsorship of a post is NOT

- **A determinant in ER prediction**
  It has almost 0 importance in the prediction model.
- **A factor of ER for a specific influencer**
  Sponsorship wouldn't affect the ER of a post at all for a specific influencer (P-value = 1 in Chi-square test).

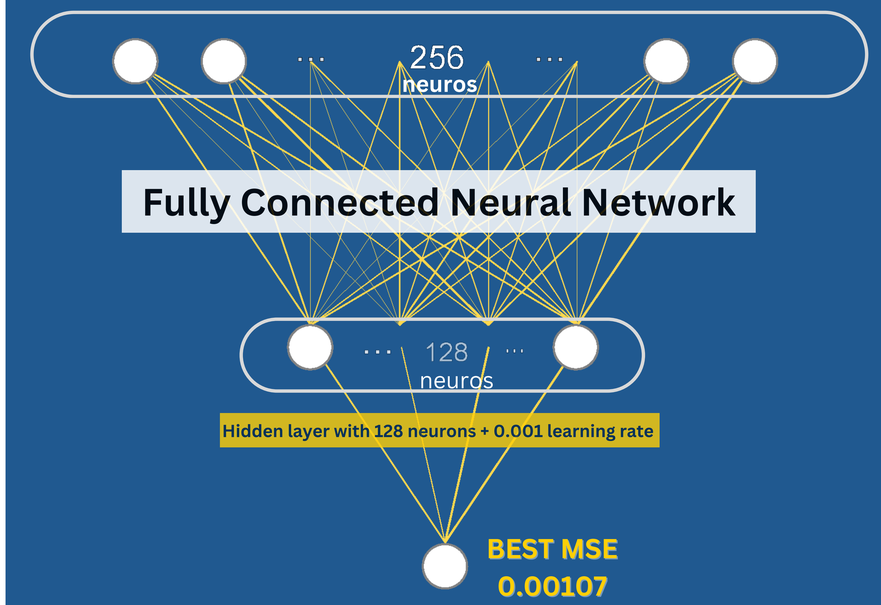
Image + Text Analysis

Unsupervised ERs Predict Model

Visual Transformer — **Text Transformer**

ViT breaks down an image into patches, processesed through a ViT encoder similar and leverages a classification head for image categorization

BERT utilizes self-attention mechanisms to capture relationships between words in a model



Conclusion

In this research, we've successfully done an analysis and predictions of popularity trends on Instagram, using features acquired and generated from user metadata, posts, hashtags, and image files. Our model error is low enough for practical use and has significance compared to previous studies. We found that the most critical factor in ERs is **total post numbers. Caption length, time features, hashtag (count and content)** have a slight impact as well. Overall, for creating viral posts, Influencers with more posts and followers can easily achieve higher post visibility to reach more audiences.

Limitation

- Insufficient post images to decode into the model
- Lack of user's account information/background data
- Not enough computational resources result in limited simulation in our research

SCHOOL OF INFORMATION
Information changes everything.