

Ph.D. DISSERTATION DEFENSE

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Degree: Doctor of Philosophy
School/Department: School of Business / Business Administration
Date: Wednesday, November 19, 2025
Time: 9 am – 10:30 am
Location: Virtual(<https://stevens.zoom.us/j/3898717267?omn=93387757510>)
Title: Three Essays on Data Mining and Text Analysis of Social Media Data:
Exploring Firms and Customer Behavior
Chairperson: Dr. Gaurav Sabnis, Marketing, School of Business
Dr. Jose Tribo, Strategy, School of Business
Dr. Hyewon Oh, Marketing, School of Business
Committee Members: Dr. Wei Zheng, Management, School of Business
Dr. Ning Yue, Computer Science, Charles V. Schaefer, Jr. School of Engineering and Science

ABSTRACT

The three essays provide a comprehensive understanding of how organizations and individuals adapt their social media behaviors to evolving algorithmic environments, institutional expectations, and audience dynamics in the digital communication era.

The first essay “*Exploring the Decline of Organic Corporate Social Media of Big Firms*” examines the decline of organic corporate social media activity in the algorithmic era. Using data from Facebook and Instagram accounts of Fortune 500 firms combined with Compustat financial data, a panel vector autoregression model reveals that posting frequency has declined significantly, particularly among financially stronger firms. Frequent posting no longer increases engagement and can even reduce it. Drawing on Institutional and Algorithmic Media Theory, the study argues that firms are strategically shifting toward selective, high-impact content and paid promotion, reflecting adaptation to algorithm-driven visibility and evolving norms in corporate communication.

This second essay “*What Makes a Yelp Review Effective? A Text–User Analysis of Review Helpfulness on Yelp Restaurant Reviews*” explores what makes a Yelp restaurant review effective using data from the Yelp Open Dataset. Guided by Information Diagnosticity Theory, the Elaboration Likelihood Model, and Signaling Theory, it examines how textual and user attributes jointly shape audience engagement. Employing Negative Binomial and Logistic regression models, the study finds that longer, more detailed, and lexically richer reviews—particularly those discussing price and service—receive more reactions, while overly positive or ambience-focused reviews attract fewer. Reviewer reputation enhances engagement, whereas excessive posting diminishes it. The findings contribute to understanding online review effectiveness and improving digital platform credibility.

This essay “*The Relationship between Firm Characteristics and Corporate Social Media Response to Black Lives Matter*” examines Fortune 100 firms’ responses to the Black Lives Matter movement following George Floyd’s death in May 2020. Using Twitter data, and firm-level financial indicators, the study analyzes how corporate financial strength influences symbolic CSR actions such as BLM-related tweets and donations. Employing split-hazard, linear, and logistic regression models, the results show that firms with stronger financial performance responded faster and more frequently to the event, while industry differences shaped response intensity. The findings illuminate how financial capacity and institutional context drive corporate engagement with social justice issues.