

# Evaluating Journalistic Practices on Twitter Using Social Network Analysis

SCS Senior Honors Thesis Proposal

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## **Abstract**

*Social media platforms such as Twitter have transformed journalism by providing an enormous and dynamic new ground for distributing information. Emerging mechanisms for social interactions motivate organizations and individual journalists to update their practices, causing fundamental shifts in the way the general public access new information and form opinions. The answer to “what is good journalism?” is becoming increasingly elusive and demands new scientific methods. This work will explore the use of network analysis techniques to characterize different journalistic practices on Twitter and explain their influence on reader networks. This work will also present an application of these methods on state media accounts on Twitter, to learn whether these techniques offer us new insights on the patterns in their journalistic practices.*

## **Research Problem**

Journalism has gone through paradigm shifts since the birth of social media. Digital platforms such as Twitter magnify the influence of individual voices and motivate traditional press to constantly update their strategies and business models. We as a global community are yet to fully understand the new social order under social media-based journalism. To ensure a healthy landscape of information exchange, it is crucial for journalists, news organizations, lawmakers, and the general public to develop an accurate and comprehensive awareness of the social impact that different journalistic practices bring about. Such an awareness would allow journalists and news organizations to make more informed decisions and be truly accountable for their online activities. It would also help readers be more attentive and critical when choosing their sources of information and engage more effectively in public discourse.

In this research project, I intend to use network analysis techniques to gain insights into how different journalistic practices online cause changes to its audience. Drawing from social science theories, existing research on social media, network analysis techniques, and computational tools, I plan to develop a general framework that categorizes different behavior patterns of journalist/news accounts on Twitter, and map them to patterns of change in reader networks and possibly the larger online community.

This research consists of three parts: 1) designing a scheme to characterize journalistic practices, 2) detecting change in reader networks, such as increase/decrease of follower number, changing compositions of followers, etc., and 3) creating mappings between journalistic practices and network changes. In part 1, instead of focusing on the content of tweets, this work will look at meta-features in order to detect patterns of behaviors or strategies across a period of time. Some example features could be the use of image/video, the use of quotes, post frequencies, retweets, etc. I will avoid using the liberal/conservative dichotomy as part of the description, because it is not immediately indicative of any strategy, although it might help us infer information about it. In regard to part 2, significant amount of studies have been done to characterize movements in Twitter communities. The main challenge in this work, however, is to define a characterization scheme for network changes which allows for meaningful mappings between network changes and journalistic behaviors. The decisions made in both part 1 and part 2 need to service the overall narrative of cause-and-effect between journalistic practice and readership in part 3.

A proposed application of this work is for understanding the Twitter presence of *state media*. For example, *People's Daily*, China's state-owned media, has 4.43M followers on Twitter (as of August 22, 2018) despite the fact that Chinese citizens have no legal access to the social-media website. The content it posts ranges from breaking news to cooking videos. During the course of this research, I am curious to see whether we are able to develop a framework that can characterize the online activities of *People's Daily*, describe its sphere of influence, and compare these evaluations with journalist/news accounts of democratic states.

## Research Plan

### *i. Background readings*

This work is inherently interdisciplinary, continuing lines of inquiry across computer science and the social sciences. Background readings for this research can be divided into four categories with overlaps in between. The first category is **Twitter and journalism**, from which I hope to learn about Twitter as a distinct program of study with its own set of theories and methodologies. Tolmie et al. [12] examines Twitter as a social phenomenon and establishes a framework treating Twitter-based studies as an independent program, distinct from conversation analysis. This work also offers a comprehensive overview of existing literature on Twitter, which would serve as an initial pointer for further readings. The pattern of news on Twitter has been studied from a variety of angles. Orellana-Rodriguez et al. [8] presents "Twitter News Model (TNM)," a prediction model for understanding news consumption by Twitter users. Starbird et al. [9] took a statistical approach to study how journalists engage in the spread and correction of online rumors. Bruns et al. [3] studies the news sharing choices of Australian and German national press corps. Golbeck et al. [5] assigns a media bias score (liberal v.s. conservative) to each follower account to predict how audiences of different media outlets and organizations differ in their political preference.

The second category of readings is **social network analysis**, from which I would learn techniques to detect changes in reader networks. Girvan et al. [4] proposes methods to detect latent community structures in various kinds of networked systems. McCulloh and Carley [7] describe new statistical process control techniques to detect and anticipate change in social networks. Benigni et al. [2] apply three graphical methods to summarize content from extremist communities on social media.

The third and four categories are **media literacy** and **state media**, from which I hope to acquire background knowledge and develop intuitions for experimentations and applications. Data&Society, a non-profit interdisciplinary research organization, has published a report on the topic of media literacy [9] and an analysis of conservative news practices [10]. The works by Data&Society tend to be extremely relevant to the current sociopolitical climate, which would help me think more critically about the purpose and applications of this work. From non-academic literatures about state media, I hope to learn how the literary and political perspectives [3] [6] differentiate state media from news organizations in democratic states.

### *ii. Contribution*

With this research project, I will contribute a new framework that characterizes the journalistic practice of specific journalist/news Twitter accounts and infer changes in readership. I will contribute results of case studies—an evaluation of the latent strategies of state media accounts and the composition of their reader networks. I will also provide human-readable explanations for what different quantitative analyses mean in context, as well as a discussion of how this framework may be used to promote media literacy in academic or professional settings.

### iii. Expected results

The main expected result of this work is a flexible framework that can be applied to all journalistic/news accounts on Twitter and generate meaningful, informative results. The robustness of this framework can be evaluated based on the result of case studies. An ideal framework should generate meaningful distinctions between state media accounts and news accounts of democratic nations. Additionally, the result of this work should be articulated such that non-technical people can easily understand and discuss it, because the ultimate mission of this work is to empower citizens, journalists, and lawmakers to engage more responsibly and critically with news.

### iii. Timeline

Fall 2018

week#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>deliverables</b>	<b>Mid-semester technical report</b> (related works plus adjusted research plan)							<b>End-of-semester technical report</b> (summary of work accomplished, results, and adjusted research plan)							
<b>tasks</b>	Background reading														
			Initial experimentations in ORA to detect network changes												
						Basic framework to characterize journalistic behaviors									
												Report and poster presentation			

Spring 2019

week#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>deliverables</b>	<b>Mid-semester technical report</b> (summary of work accomplished, results, and adjusted research plan)							<b>End-of-semester technical report</b> (full report)							
<b>tasks</b>	Basic framework mapping journalistic practices and network changes														
				Iterative evaluation and modification of framework											
								case studies							
												Report and poster presentation			

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