Complex, Contemporary, and Unconventional: Characterizing the Tweets of the *#NativeVote* Movement and Native American Candidates through the 2018 U.S. Midterm Elections

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In the 2018 U.S. midterm elections, a record number of Native American candidates ran for office at all levels of government [85]. To better understand how these 104 candidates intersected with Indigenous political issues and movements to increase Native American voter turnout, we study 723,269 tweets about or by these candidates and 15,476 tweets associated with the *#NativeVote* movement between October 6, 2018 and February 5, 2019. We use a mixed methods approach to identify issues that emerge in the Native Candidates data set, including issues of representation and protean usage of the "Make America Great Again" hashtag (*#maga*). When examining the feeds of selected candidates, we find that there can be a disconnect between the issues that candidates align themselves with on social media and the issues that they are associated with by others. We also find evidence of Indigenous issues spanning a vast political spectrum and being coupled with other issues in different ways by different candidates and audiences. Finally, we examine the intersection between Native American candidates and the *#NativeVote* movement to discover emergent issue networks, including networks around voter suppression and Indigenous political action. Critically, we discuss how our interdisciplinary Indigenous feminist approach to social media analysis illuminates issues of marginalized communities in both a systematic and inductive manner that allows us to discover new patterns and issues with limited *a priori* knowledge about a complex system.

CCS Concepts: • **Human-centered computing → Empirical studies in collaborative and social computing**.

Additional Key Words and Phrases: indigenous; social computing; social media; political discourse; representation; mixed methods

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1 INTRODUCTION

Social media plays an increasingly significant role in U.S. political discourse and engagement [7, 26, 50, 93], particularly among historically marginalized social groups [11, 27]. In the absence of adequate political representation, Native American communities use social media to organize across diasporas and represent their concerns to a global community. Through analyzing political discourse in the Twittersphere around the 104 Native Americans who ran for office in 2018 and the *#NativeVote* movement to increase Native American voter turnout, we seek to address the following research questions:
RQ1: To what extent do Indigenous issues manifest in tweets by and about Native American political candidates as represented by a Twitter keyword filter on candidate names and usernames?
RQ2: Are the issues tweeted by Native American political candidates reflective of issue networks that coalesce around them?
RQ3: To what extent do the issues that coalesce around Native American candidates also coalesce around the *NativeVote* movement as represented by a Twitter keyword filter on phrases pertaining to *NativeVote*?

We find that Twitter users associated more Indigenous issues with the general hashtag *#NativeVote* than they did with the names of the 104 candidates. Also, some Native American candidates committed to Indigenous issues as a key component of their campaign platform while others sublimated their understanding of Indigeneity in favor of the party line. Moreover, Twitter users associated our selected Democratic Native American candidates with a greater range of issues than the candidates tweeted about themselves, with the topmost issues being representation of women and representation of Native American peoples and issues. Comparatively, Twitter users associated our sample Republican Native American candidates with more Republican campaign slogans than the candidates applied themselves, including *#maga* ("Make America Great Again"). Also, the sample Republican candidates, though Native American and women, did not take up issues of representation through Twitter as systematically as our sample Democratic Native American candidates. Additionally, we find that the issues associated with the *NativeVote* movement are complex and conflicting, revealing how Native Americans negotiate a broad swath of political commitments that are shaped by religion, class, rurality, tribal sovereignty, party politics, gender, and challenging histories of being precluded from participating in electoral politics.

As with all studies dependent on social media data, the data sets in this study represent a model of a slice of reality, and are a snapshot of a larger narrative about Indigenous voters in the United States. As this study is limited to data collected using a keyword search, the data analyzed and conclusions drawn are limited by the keywords we included. Moreover, the likely influence of inauthentic accounts also limits the extent to which we can conclude strong mappings between information presented via political discourse on Twitter and information that arises from a more holistic political discourse surrounding Native American candidates and voters. Thus, this study needs to be juxtaposed alongside existing qualitative and quantitative studies about the status of Native American political participation and uses of media in North America, and should be read in light of awareness of structural inequities shaping Native American political participation. While we acknowledge these limitations, we also argue that our Indigenous feminist approach allows us to reframe and address the undermining of Indigenous political issues, in relation to the 2018 U.S. midterm elections, by centering the narratives of Native American issues as they are expressed through Twitter.

2 BACKGROUND

The 2018 U.S. midterm elections featured one of the most diverse candidate pools in history, with candidates representing an array of ethnic, racial, gender, and sexual identities. It was a particularly exciting election for Native American candidates, who were present in record numbers. Historically, Native Americans often represent a voting bloc that does not garner the attention of major party candidates, and as a result, Indigenous issues can be absent from many political campaigns [47]. Even when Native Americans manage to get their issues heard in Congress, inadequate architectures of listening and the the Congressional practice of refuting the right of sovereign tribal consent prevent timely and actionable uptake [91]. Additionally, the social stigma against Native Americans and people of color in U.S. politics has made it difficult for Native American candidates to gain the support needed to advance in local races [20]. Finally, the concerns troubling voters in Indian Country are often hot-button issues for mainstream voters, issues that candidates tend to avoid [67].

In 2016, Vigil-Hayes et al examined how social media facilitated political discourse and connective action among Native American advocates during the 2016 presidential primary election season, and found that many of the issues in Native American political discourse on social media (e.g., missing and murdered Indigenous women, environmental degradation, violent crime and death) were not represented in major party campaign platforms[95]. Unfortunately, this lack of representation was not surprising. The 2016 Trump presidential campaign rhetoric denigrated women, Native Americans, and people of color. By 2017, voters and candidates organized against the rhetoric and illicit activity emerging out of the Trump White House [85] and the 2018 U.S. midterm elections became an opportunity for historically marginalized candidates to wield decisive power.

3 RELATED WORK

A body of work has examined social media with the aim of understanding the themes [3, 5, 29, 54, 57–59, 65, 79, 95], biases [17, 19, 60], and percolation properties [5, 33, 95] of political content on these platforms. Vigil-Hayes et al leverage network and social scientific analyses to examine the connective actions of Native American advocates on Twitter during the 2016 U.S. presidential primary elections, and identify significant differences in issues discussed by these advocates versus mainstream presidential campaign platforms. They also examine how media richness contributes to content dissemination over time. Deschine-Parkhurst analyzes the social media traces of the *#SaveOakFlat* movement, and examines the way narratives of Native American activism galvanize public awareness and action through political petitioning [22]. Mahoney et al use qualitative methodologies to analyze Instagram usage of the Scottish electorate during the 2014 Scottish independence referendum and the 2015 U.K. general election [54]. In a recent paper presented at CSCW, Stewart et al leverage a network framing approach to outline frames and counterframes in the context of *#BlackLivesMatter* [81]. Related work also focuses more narrowly on social media's potential impact on policy-making and election outcomes [34, 35, 39]. Hemphill and Roback leverage Serle's classification of illocutionary acts to characterize how citizens lobby members of Congress on Twitter [39]. They find distinctive characteristics of Twitter-based lobbying messages compared to email- or letter-based lobbying messages, including conciseness, lack of anecdotal storytelling, and lack of validated constituency status. While their methods were unable to draw conclusions about the impact of lobbying via Twitter, the researchers did note that some of the key characteristics of Twitter-based lobbying messages seemed similar to those observed in emails or letters.

Additional related work in feminist media studies points to the fraught relationship between analysis of social media traces as evidence of social change, and the institutional structural change needed to eradicate misogyny and violence against people of color [68]. Work in this area focuses

on how methodological choices are shaped by a feminist ethics of care, requiring methodological participation from individuals who represent the researched [49, 52, 53].

Finally, our work is related to research efforts that leverage mixed quantitative and qualitative approaches to social media analysis [13, 36, 44, 56, 69, 75, 99]. Most similar to our approach is the culturally grounded approach used by Harrell et al to explore users' self-representation through Instagram accounts in Qatar [36]. In this study, quantitative methods focus on analyzing the demographic features associated with user accounts through archetypal analysis; qualitative methods involved interviewing five individual users and analyzed the interview data using an Action-Implicative Discourse Analysis and grounded theory approaches. Given the historical and contemporary misrepresentation and exclusion of Native American people and culture in information ontologies [24], our study also uses a grounded theory approach to identify emergent themes, but we apply this approach to the social media content itself, rather than to supplemental interview data. Indeed, our approach was influenced by Clark's dissertation work that introduces a qualitative mixed methods approach to understanding "Black Twitter," which identifies initial Twitter filters in information that Black communities publish and share about themselves [16]. We similarly approached this study by first identifying relevant filters as culled and shared by a respected journalist who covers political issues in Indian Country. Critically, we have extended this model to quantitatively engage with the relationships that form between users and content over time by leveraging methods from network analysis.

4 DATA OVERVIEW

4.1 Filter Curation

To identify the names of Native American candidates running for political office, we relied on a master list maintained by Mark Trahant (Shoshone-Bannock), an independent print and broadcast journalist whose blog covers Native Americans and politics [86]. Trahant is the editor of Indian Country Today[1] and is the former Charles R. Johnson Endowed Professor of Journalism at the University of North Dakota. Trahant's list was exhaustive, and was developed in part through crowdsourcing, as he disseminated the list through social media and on his blog TrahantReports in a web-editable document [83]. The list included the names of 104 candidates from across the political spectrum and in various congressional and gubernatorial races. These names were mapped by the researchers to corresponding tags[2] that were already in use on Twitter. Of the 104 candidates, 43 had verified Twitter usertags, which we also added to our filter. For all 104 candidates (even those that did not have verified usernames or corresponding hashtags), we used their full names as keywords in our filter. In addition to generating filters to capture content associated with Native American political candidates, we also used filters to capture information about the *#NativeVote* movement, a hashtag started by the National Congress of American Indians (NCAI) Every Native Vote Counts initiative [63]. This filter included the following substrings as keywords: "nativevote," "native vote," "nativeamericanvote," and "native american vote." While this hashtag is not the exclusive marker of content that pertains to Native American political action, it is the only hashtag that has been part of campaigns by brick-and-mortar institutions to increase Native American voter turnout.

4.2 Data Collection

We used a finalized list of key words and tags to collect data from Twitter using the Twitter Stream API [89]. We collected data from Twitter over a period of four months between October

[1] "The largest news site that covers tribes and Native people in the Americas [42]."

[2] Tags refer to usertags (tag represents a user account) or hashtags (tag represents *ad hoc* user-generated metadata used for tracking related content).

Data set	Posts	Users	Hashtags	Usertags
Native American Candidates	723,269	438,992	22,471	40,548
Native American Candidates: *NativeVote*	5,505	3,744	413	291
Native American Candidates: *By Debra Haaland*	158	1	50	75
Native American Candidates: *About Debra Haaland*	76,628	55,842	2,246	4,560
Native American Candidates: *By Yvette Herrell*	23	1	2	2
Native American Candidates: *About Yvette Herrell*	8,064	5,051	492	1,043
Native American Candidates: *By Peggy Flanagan*	183	1	48	84
Native American Candidates: *About Peggy Flanagan*	12,266	6,596	873	1,612
Native American Candidates: *By Donna Bergstrom*	42	1	13	13
Native American Candidates: *About Donna Bergstrom*	2,996	678	158	233
General *NativeVote*	15,476	9,485	1,774	1,602

Table 1. Overview of Twitter data sets collected for analysis.

6, 2018 and February 5, 2019. This allowed us to capture tweets that occurred before, during, and after the midterm election (which took place November 6, 2018) and up to a month after elected candidates were inaugurated (early January 2019), which we considered to be a complete cycle of newsworthiness around the midterm elections.

4.3 Description of Data Sets

Using the filters, we culled two distinct data sets. The Native American Candidates data set represents all tweets made by or about Native American candidates during the collection period. The General *NativeVote* data set represents all tweets that include substrings of "native vote", "nativevote", "native american vote," or "nativeamericanvote."

In order to more deeply understand issue emergence and representation, we selected specific Native American political candidates and filter tweets by and about them from the Native American Candidates data set. These specific candidates include candidate for Lieutenant Governor Donna Bergstrom (R-MN) (Red Lake Ojibwe), candidate for Lieutenant Governor Peggy Flanagan (D-MN) (White Earth Band of Ojibwe), congressional candidate Debra Haaland (D-NMCD1) (Pueblo of Laguna), and congressional candidate Yvette Herrell (R-NMCD2) (Cherokee). We selected these candidates for comparative purposes; namely we needed to identify distinctiveness of issue groups across party lines, and across state and federal positions of representation. An overview of the data sets are presented in Table 1.

4.4 Critique of Collection Methodologies

Studies that provide critical insight into the limitations of using social media data note three main areas of limitation: representation, sampling, and false identities. We address how our approach mitigates these limitations here.

4.4.1 Representation. Tufecki identified various aspects of the Twitter platform that might lend to bias in representation of a population [88]. Twitter has a character limit, hashtags represent user self-selection into representation, and hashtags are highly contextual. In order to avoid some of the pitfalls associated with filtering the Twitter stream based on a hashtag, we instead filter based on known user names and the full names of Native American candidates. Similarly, we collect the General *NativeVote* data set using a combination of keywords and hashtags (as outlined in Section 4.3), rather than a hashtag alone. In this way, we seek to take an inductive approach which allows us to "cast widely" with respect to data collection. By collecting data based on known candidate usertags and full names, we are able to definitively identify tweets as by or about specific

candidates. [3] Critically, while this approach does allow us to cast a broad net as it pertains to previously known movements (*"NativeVote"*) and candidates, it does not capture anything outside of these keywords or hashtags. Importantly, our perspective on how Twitter is used to circulate information about Native American political candidates or information by Native American political candidates is limited to tweets that include either candidates full names (which we use as a filter) or their verified usernames (which we also use as a filter). Similarly, we are only to understand the issues that emerge around the *NativeVote* movement if they contain one of the four *NativeVote* substrings we include in our filter (see Section 4.3 for a list of keywords).

We also note that Twitter is far from being the only social media relevant to political discourse. Mahoney et al describe Instagram usage during elections in the U.K. [54] and several researchers have examined political discourse on social media platforms like YouTube and Facebook [77, 87]. While we collected Instagram data analogous to the data analyzed in this paper, we had to rely on an unstudied Web scraping technique for collection and found that data mined from Instagram was not as rich in detail regarding information about content propagation and discourse. Thus, we focus this paper on Twitter as our conclusions can be drawn with a clear understanding of the limitations of our approach.

4.4.2 Sampling. Several researchers have identified mechanisms for mitigating sampling effects in Twitter's Streaming API [21, 61]. One method is to generate more specific parameter sets that go beyond a single hashtag to include multiple keywords, geographic bounding boxes, and different usertags. We attempt to practice this approach in our collection methodology by filtering on usertags and full names of candidates in the Native American Candidates data set. For the NativeVote data set, we use a combination of hashtags and phrases. For this data set, we are careful to nuance our observations with the fact that we seek to understand how this hashtag or phrase was being used in the Twittersphere, but we do not make broad claims about who is using the hashtag or why they are using it without significant qualitative analysis of specific tweets. We also do not use geographic bounding boxes because studies show that geotagged tweets might contribute to biases [37, 55, 78] which can skew representation to wealthier, urbanite users, which would not encompass many of the rural and lower-income constituents that might engage with Native American candidates or the NativeVote movement on Twitter.

To ensure that data was not lost due to timeout or rate limiting, we log Twitter Streaming API response codes that indicate rate limits or timeouts. For our entire collection period, we observe no logged rate limit events, likely because the Twitter Streaming API is designed to enable continued data transfer over a long-lived network connection [89]. To ensure that this was indeed the case, we replicated our streaming efforts over four API access keys that collected data with identical filters. We calculated a differential between the data collected by each of the four collection processes and found that the data collected was identical across all processes. The differential was calculated by creating a set of tweet IDs for each tweet in the four data sets and then calculating the Jaccard similarity between each set. We calculated a Jaccard similarity of one for each data set comparison, indicating identical sets and very low probability of loss.

4.4.3 False Identities. Another critique of Twitter data is the large number of bots, provocateurs, and fake accounts present on the platform [4, 30, 38, 92]. These accounts are becoming more difficult to detect in a scalable manner, as both bots and inauthentic actors are behaving increasingly similar to authentic actors [15, 51, 90]. Using heuristics confirmed by efforts to identify bots and cyborgs

[3] We note here that 'representation' in the methodological sense refers to accounts and tweets that are indicative of a larger population, which differs from the way the term 'representation' is used in the actual messaging crafted by Twitter users, wherein it most often indicates an individual's right to self-express and politically participate as well as a people's right to set political agendas.

in social media, we use temporal features of the users observed in our data[4] to conclude that 3.0% of the user accounts observed in the Native American Candidates data set and 2.7% of the user accounts observed in the General *NativeVote* data sets are likely bot accounts [15, 92]. This is comparable to estimations by Varol et al who claim that 9%-15% of Twitter user accounts are bot accounts [92].

While we did attempt to quantify the extent to which bots were present in our data set, we acknowledge that there are limitations to how conclusively we can identify bots and inauthentic actors and the effect they have on political discourse on social media [4, 90, 97]. This is a noteworthy limitation as researchers have demonstrated that false accounts can be extremely influential in the dynamics surrounding political discourse on social media [28, 90, 97] by enacting stereotypes and modeling how to react to information [4, 41]. Without supplementary interviews with real users who are tweeting about Native American candidates and the *NativeVote* movement, the strength of our conclusions as they reflect authentic use is limited. However, our work serves as a baseline to understand what information circulates on social media around Native American candidates and the *NativeVote* movement and presents a foundation from which to continue investigating the relationship between online and offline political discourse in this context.

5 ANALYSIS METHODOLOGY

While hashtags cannot depict the scope of the issues facing the U.S. and Native Americans today, they are an integral part of the contemporary political landscape [6, 10, 31, 48, 70]. Thus, we rely on a mixed methods approach to quantify and qualify the dynamics of political issues and discourse as they are brought to bear by Native American candidates and voting movements on Twitter. Here we describe the techniques that we used to characterize our data.

5.1 Theoretical Framework

The research team consists of Native American and feminist advocates with combined decades of expertise in policy work, activism, research, and theory-building. This research incorporates multiple network and social scientific analytic procedures through a feminist decolonial axiology. Claims to truth are grounded in lived experience; the research team adds a level of rigor to the methodology by drawing on domain knowledge and a feminist ethics of care to contextualize findings [14, 53]. Statistical and thematic findings are interpreted against an acknowledgement of the colonial relationship between the U.S. and sovereign tribal nations, as well as the historically heteropatriarchical property rules that have precluded Native Americans, people of color, and women from attaining positions of public power. Network scientific procedures include issue network analysis, hashtag coincidence network analysis, and descriptive statistics of posts over time. Social scientific procedures include conscientious curation of data sets used to seed broader data sets, qualitative analysis of themes and patterns found in topical hashtags, hashtags about and by selected Native American candidates, tweets, and interpretation of results in light of the literature on race, gender, and Indigeneity. Twitter data sets are accordingly interpreted as models created by the actors (including bots and provocateurs) in the data set, and are not misconstrued as a record of the exact complex reality shaping Indian Country, but rather as expressions emerging from the sociotechnical and political geography of Indian Country.

[4]We identified potential bots as users who post at an average frequency of more than once an hour.

5.2 Network Analysis

We leverage network analysis techniques to understand relational qualities between users and content. We note that we convert all content to lowercase prior to aggregating hashtags so that sentence case does not delimit tweets that are similarly tagged.

5.2.1 Issue Networks. In order to understand the manner in which users coalesce around issues, we use bipartite network projections, similar to the method used by Vigil-Hayes et al [95]. For issue networks, graphs are comprised of a set of nodes representing users and a set of nodes representing hashtags. When a projection is made on the hashtag nodes, links between nodes are weighted based on the Jaccard similarity of user nodes that are connected to each hashtag. Jaccard similarity examines the ratio of the size of the intersection of two sets to the size of the union of two sets and ranges from zero (where there is no intersection between sets) to one (where both sets are identical). Thus, hashtags with very similar user bases will have a link with a heavier weight; hashtags that do not share a user base will have no link between them. We identify clusters of related issues, which we refer to as "issue groups," by applying the Louvain community detection method, one of the fastest network partitioning methods that works by maximizing the ratio of the the density of links within a community to the density of links outside the community [8].

Hashtag coincidence networks are comprised of hashtags as nodes that are linked together if they co-occur in a tweet. The weight of the link is incremented for every time a pair of hashtags occur together in the same tweet.

5.3 Identifying Emergent Themes

We identify emergent themes in two ways. First, we examine individual and co-occuring hashtags to understand themes as they manifest as annotations. Second, we examine the full content of widely propagated tweets to understand themes as nuanced alongside media, hyperlinks, and annotations.

5.3.1 Quantitative Methods. Here we use frequency, pervasiveness, and persistence to identify emergent themes in our data sets.

Frequency. Frequency is one of the most commonly used metrics by which emergent themes are identified in social media. For this study, frequency is based on the number of times content appears in the data set over a certain period of time. Unless otherwise noted, we generally report frequency with respect to the entire collection period.

Pervasiveness. Pervasiveness is a measurement technique from the computer networks community which seeks to understand the portion of time windows in which some content is present [66]. The size of time windows can be adjusted to understand the scale of pervasiveness. For instance, if we split our entire data set into hour-long time windows of observations and we found that hashtag *#A* was in in 50% of these hour-long time windows, we would say *#A* had an hour-long pervasiveness of 0.5. However, if we split the data set into week-long time windows and *#A* was in 90% of these week-long time windows, we would say *#A* had a week-long pervasiveness of 0.9. Pervasiveness can be used to characterize how saturated the data set might be with a particular theme. For this paper, we use lengths of one hour and one week to measure pervasiveness.

Persistence. Where pervasiveness measures theme saturation in the data set, persistence leverages techniques from computer networks to characterize the degree to which a theme persists in time. Like pervasiveness, persistence requires that the data set be split into uniform time windows. If content is present in one window and present in an adjacent window, we say that content persists from one window to the next and we increment the current persistence by one. When the content does not persist to the next time window, we append the most recent persistence value to a list of persistence values associated with the content. After iterating through all time windows, we report

the overall persistence associated with content as the mean of the list of associated persistence values. For instance, if we split the data set into hour-long time windows and *#A* was present in time windows 1, 2, 3, 5, 6, and 8, we would report that *#A* had an hour-long persistence of 1. Similar to pervasiveness, persistence can be measured using time windows of various lengths. In this paper, we use lengths of one hour and one week.

5.3.2 Qualitative Methods. In order to map some of the specific hashtags to larger themes, we use a grounded theory approach. Two researchers independently categorized and coded the top 100 hashtags across two data sets: the Native American Candidates data set, and the NativeVote data set. The two compared their categories and developed a code book, which was then used to code data sets containing top hashtags by and about the selected four candidates, as well as a data set containing hashtags associated with all 104 candidates. Where differences of opinion arose regarding the nature of hashtags, we noted the nuance, and sought clarification through a review of associated critical political events. For example, *#ocetirising*, which in 2016 may have indicated Indigenous peoples organizing against the Dakota Access Pipeline, in November of 2018 shifted in meaning to indicate new state laws that allowed polling stations to turn away North Dakota voters with post office boxes rather than street addresses [23, 71, 98]. Finally, researchers identified the top codes and topical issues that arose across the coded data sets, and described those in terms of the observable behavior of dynamics in the social graphs, published literature, and with regard to domain knowledge about politics in Indian Country.

6 RESULTS

We report the results of our inquiries as they address our research questions. We note that when quoting tweets in this section, we withhold usertags that could be used to identify specific affiliations, unless the user mentioned is one of the candidates for which we filtered. We consider this as ethical practice given the documented surveillance of activists' social media accounts that occurred during the Standing Rock protests and the fact that some of these accounts may be part of our collected data sets [45].

6.1 Presence of Indigenous Issues and Topics in Native American Candidates Data Set

Given the record number of Native American candidates running during the midterm 2018 election cycle, we examine the Native American Candidates data set to see the degree to which Indigenous issues and topics emerge as salient themes. The emergence of such topics supports the idea that Indigeneity transcends party lines, regions, and tribal affiliations [84].

In an analysis of Twitter data from 2016, Vigil-Hayes et al. identified a number of hashtags associated with Indigenous issues in the United States, including *#mmiw* (missing and murdered Indigenous women), *#nativelivesmatter* (police brutality against Native American people), and *#pipeline* (in reference to the Dakota Access Pipeline). In order to address RQ1, we examine the extent to which these issues are present in the Native American Candidate data set by quantifying the presence of predetermined hashtags, but also by qualifying the topics that emerge in the most frequently observed hashtags observed in the data set and subsequently quantifying them. We use hashtags in order to analyze the degree to which Indigenous issues are present in the tweets by and about Native American political candidates.

We first examine the most frequently used hashtags in the Native American Candidates data set (see Table 2). We find that rather than reflecting specifically Indigenous issues, many of the most frequently occurring hashtags reflect election-related events and places where elections involve Native American candidates.

Hashtag	Frequency	Pervasiveness (hour)	Persistence (hour)	Pervasiveness (week)	Persistence (week)
#ks03	10,974	0.44	2.78	1.0	3.0
#electionnight	8,512	0.05	1.37	0.68	1.0
#midterms2018	6,013	0.11	1.9	0.65	2.0
#116thcongress	5,293	0.08	2.06	0.53	1.67
#maga	5,067	0.19	1.08	1.0	3.0
#firsts	3,887	0.03	1.37	0.24	1.0
#electionday	3,613	0.08	2.77	0.59	2.0
#nativevote18	3,433	0.14	2.35	0.76	2.67
#cnnelection	3,151	0.02	2.13	0.18	0.0
#sharicedavids	3,110	0.17	0.91	1.0	3.0
#nmpol	2,745	0.24	1.62	1.0	5.0
#sherepresents	2,724	0.23	1.78	1.0	3.0
#ksleg	2,398	0.23	1.31	1.0	3.0
#oneminnesota	2,284	0.24	1.65	1.0	3.0
#nativecongress	2,065	0.05	1.89	0.29	0.0

Table 2. Top 15 most frequently observed hashtags in the Native American Candidates data set.

6.1.1 Notable Candidates and Places. Some of the most frequently occcurring hashtags as well as the most persistent and pervasive on short and longer term scales relate to specific places. *#ks03* and *#ksleg* refer to Kansas' third congressional district and Kansas Legislature respectively. These are largely in association with Sharice Davids (D-KSCD3)(Ho-Chunk), who ran (and was elected) for the U.S. House of Representatives. *#nmpol* refers to New Mexico politics. There were 10 Native American candidates running for various levels of office in New Mexico during the midterm elections, including Haaland, who ran (and was elected) for the U.S. House of Representatives. *#oneminnesota* is associated with Minnesota gubernatorial candidate Tim Walz and running mate Peggy Flanagan and their multiethnic organization that centers on "public policy recommendations that support and propel racial, social and economic equity throughout state, county, local governments, agencies and corporations [64, 82]." After the results of the 2018 midterm elections, both Davids and Haaland became the first Native American congresswomen in the history of the U.S.; Flanagan became the first Native American woman elected to statewide office in Minnesota.

6.1.2 #MAGA. Another notable hashtag in this data set is *#maga*, which refers to the "Make America Great Again" (MAGA) campaign slogan used by President Trump during the 2016 U.S. presidential election. This hashtag was one of the most frequently used, most pervasive, and most persistent hashtags on a long-term scale (measured by weekly pervasiveness and persistence). We also note that there are a total of 43 hashtags observed in the Native American Candidates data set that involve variations on the original *#maga* hashtag, including *#magats* (portmanteau of "MAGA" and "maggots"), *#magapatriots*, *#magamisogyny*, *#maga2020*, *#magahate*, *#magaxenophobia*, and *#magaterrorism*, indicating that that use of the hashtag can be both critical and supportive of the MAGA movement. When examining some of the tweets that use the standard *#maga* hashtag, we find that context and coinciding tweets can be helpful in determining the connotation associated with *#maga*. Many of the tweets that use *#maga* in support of MAGA are campaigning for Republican candidates, for example:

"*VOTE RED, AMERICA! Please get to the polls tomorrow, November 6th and support these great Republican candidates! Carlos Curbelo FL-26, Andy Barr KY-6, Yvette Herrell NM-2, John Culberson TX -7 & Denver Riggleman VA-5! #MAGA*"

In contrast, we find that tweets that are critical of MAGA are typically in response to specific events, such as an allegedly racist incident between MAGA hat-wearing boys from Covington Catholic High School and a well-known elder Native American activist Nathan Phillips at the 2019 Indigenous Peoples March outside the Lincoln Memorial [73]:

"@Deb4CongressNM An entire generation of young white boys and men are being radicalized by Trump in front of our very eyes. Impeachment or no impeachment, defeat in 2020 or no defeat in 2020, I suspect it's too late to put this particular #MAGA genie back in the bigoted bottle."

or the 2018-2019 U.S. federal government shutdown:

"If the shutdown is good for the country, and if people are suffering for the good of the country, WHERE ARE THE #MAGA FOOD PANTRIES??? I only see Liberals helping their fellow citizens. What gives??? @RepMullin"

There are also many tweets that critique MAGA by contrasting politicians associated with MAGA to politicians who are not:

"I'm happy we're about to see women leading a portion of our Federal Government with intellect, reason, compassion & regard. This #MAGA leading w/ belligerence, motivated ignorance, & selfish infantile tantrums has been getting me down. @sharicedavids"

We also observe tweets that use the *#maga* hashtag in an ironic manner. For example, this tweet about the inauguration of Ruth Buffalo (D-ND)(Mandan Hidatsa), the first Native American woman elected to the North Dakota Legislature, uses *#maga* in a supportive way, but emphasizes its use to support an Indigenous American:

"Ruth Buffalo, an authentic American, was sworn into office in traditional American attire. #MAGA"

The variability in which this loaded hashtag is utilized supports Campbell's propositions about rhetorical agency, that agency is inherently protean and subject to reversal [12].

6.1.3 #SheRepresents. Aside from the top hashtags that focused on aspects of voting (*#electionnight*, *#midterms2018*, *#nativevote18*), the hashtag *#sherepresents* marks a shift from the common words associated with Election Day. *#sherepresents* refers to a movement of identifying, celebrating, supporting, and increasing the number of Native American women candidates running in the 2018 midterm elections. Trahant started to use *#sherepresents* when he noticed a record number of Native American women candidates running for political offices while crowdsourcing a list of Native American candidates running for offices at varying levels of non-Tribal government in the U.S. *#sherepresents* is multifaceted and demonstrates how Indigenous issues span geographic boundaries, how Indigeneity connects issue groups online, and the importance of the media framing of Native American women political candidates. The boundary-spanning effect of *#sherepresents* is seen in a few of Peggy Flanagan's tweets wherein she connects herself to Sharice Davids:

"Congratulations to my Native sister @sharicedavids on your incredible victory! #NativeVote18 #SheRepresents"

#sherepresents also marks the contributions and importance of Native American women candidates in politics. This issue group connects candidates across geographic boundaries, from digital to public spheres, and continues to connect candidates post-election. For example, Flanagan tweets about the historic moment she shares with other Native women elected to office:

"History was made this past election cycle, there's no doubt about it. But this is just the beginning. What Native women across the nation will accomplish in our new roles is the start of something even greater. #HerStory #SheRepresents"

#sherepresents is an intriguing foil to *#maga*; in our observations, its usage is always associated with tweets of support and empowerment and it has not yet taken on the multiple meanings and connotations that we observe with *#maga*. While it occurs about half as frequently in the data set as *#maga*, it is just as persistent and pervasive over a long-term scale and it is even more pervasive than *#maga* on a short-term scale. The ubiquity of *#sherepresents* reveals a striking and unexpected theme of optimistic, resilient sisterhood that connects Native American women candidates across different political, tribal, and regional affiliations. This stands in stark contrast to recent U.S. political elections, which have become increasingly polarized and divisive [9].

6.1.4 Hashtags Surrounding Indigeneity. Some of the most frequently observed hashtags that were overtly related to Indigeneity were *#nativecongress* and *#nativevote18*. *#nativecongress* is used in the context of Congresswomen Davids and Haaland as well as representation of Native Americans at the national level of government. *#nativevote18* is used in two different contexts. It is used as part of the Every Native Vote Counts movement used to increase Native American political participation across the U.S. It is also used as a way to tag tweets about or by Native American political candidates. We examine the distinctions between these two use cases in Section 6.3.

Among the top 50 most frequently occurring hashtags that reference Indigenous issues or identities, we observe *#indigenous*, *#mmiw*, *#tairp*[5], and *#nativeamerican*. As discussed by Duarte et al, *#indigenous* is an identity hashtag that connects issues and identities together across geographic, tribal, and ontological boundaries [25]. *#nativeamerican* works similarly, but is not used as extensively as *#indigenous*. We confirm that this is the case by examining the issue group that include *#indigenous* and *#nativeamerican*. We find that 56% of the tweets that contain *#indigenous* also contain another hashtag. Some of the hashtags most frequently used with *#indigenous* include *#tairp*, *#nativeamerican*, *#nativeamericanvoters*, *#nativeamericanrights*, *#nd* [6], and *#bluewave18*. We discuss Native American voting rights and voter suppression issues in greater depth in section 6.3.1.

To get a more systemic sense of the issues, identities, places, and events represented by hashtags in our data set, we use a grounded theory approach to categorize the top 100 most frequent hashtags. To account for the multiple meanings embedded in a single hashtag, some hashtags applied to multiple categories. In other words, a single hashtag could reference multiple political issues, places, identities, and events. In the top 100 most frequent hashtags in the NativeVote data set, over 31,000 references to varying political issues were associated with 16,757 single hashtags, where many hashtags referenced more issues than one in a single tag. Over 19,000 references affirming voting behaviors and attitudes appeared, and over 5,100 hashtags referenced places. A smaller amount referenced the names of specific candidates. In the political issues category, the top issue had to do with Native American representation, and consisted of 18,240 references to political representation of Indigenous peoples such as *#ocetirising*, *#nativelivesmatter*, *#everynativevotecounts*, and *#indigenous*. The next most prominent issue was gender representation, and consisted of 2,097 hashtags such as *#sherepresents*, *#votegirl*, *#lgbtq*, and *#shewoke*. Issues around the 2016 protests against the Dakota Access Pipeline (NoDAPL) manifested through 1,862 hashtags such as *#standingrock*, *#waterislife*, and *#standingrockthevote*. Related, but slightly different in meaning from the NoDAPL category, were 1,764 hashtags referencing Native rights to land and spirituality, which consisted of hashtags such as *#waterbelongstothechildren*, *#honormotherearth*, and *#honorthetreaties*. 1,684 hashtags referenced voter suppression with tags such as *#votersuppression* and *#votersuppressionisunamerican*, and 1,453 referenced the environment with hashtags such as *#climatechange*, *#protectthesacred*, and *#mniwiconi*[7]. Additional issues noted in the 100 top hashtags

[5]The American Indian Red Power.
[6]North Dakota.
[7]"Mni wiconi" is Lakota for "water is life."

included police brutality (869); Black representation (797); agriculture (536); LGBT representation as a subset of gender representation (467); Native media (403); violence against Natives (304); youth (327); the Indian Child Welfare Act as a subset of youth (207); and civil rights (161).

In the top 100 most frequent hashtags in the NativeVote data set, hashtags referencing places were dominated by references to North Dakota (4,861), followed by references to Kansas (295), New Mexico (120), and Idaho (199). In that same data set, there appeared to be 16,356 references to Native American voting behaviors and attitudes, including hashtags such as *#nativevote18* and *#indigenousvote*.

6.2 Issues Surrounding Candidates

Of the 104 Native American candidates that we followed, 72.1% associated with the Democratic party, 6.7% associated with the Republican party, 1% associated with the Libertarian party, 3.8% associated with the Democratic-Farmer-Labor, 3.8% associated with the Green party, and 2.9% were not affiliated with a party. Regardless of their political affiliation, each Native American candidate that was portrayed in the media was a contemporary, counterstereotypical representation of Native Americans [84]. Despite Native American candidates' appearance in media, there is a question as to whether these candidates could actually be successfully elected by identifying as Indigenous or by bringing attention to Indigenous issues as part of their campaign. This tension is further complicated by the fact that Indigenous issues cross party boundaries and Native American voters tend to vote Democrat at a much slimmer margin than any other racial minority group [72]. Ultimately, these contrasts make it difficult to know *a priori* which issues Native American candidates will bring to their platforms via social media and which issues followers might associate with them.

As compared to the top 100 most frequent hashtags in the NativeVote data set, the top 100 most frequent hashtags in the Native American Candidates data set represented significantly fewer issues, and far more references to voting behavior and attitudes, gender, issues of representation particularly of Native Americans and women, and places. Out of 22,471 many hashtags, 7,690 referenced voting behavior and attitudes. A majority (6,334) pertained to Native American voting behavior and attitude, such as *#nativevote18*, *#nativeelectiontonight*, and *#nativevotes*. 3,241 hashtags represented gender, with *#sherepresents* comprising 2,246 of total hashtags noting gender. Indeed, 2,704 hashtags in that category referenced Native American women in particular. While the top 100 most frequent hashtags associated with the NativeVote data set referenced at least 18 distinct and interrelated political issues, from the environment to Native American rights and police brutality, the Native American candidates data set referenced only one major issue, that of representation (3,849), which was largely comprised of representation of Native Americans (940), and representation of women (2,886). The Native American Candidates data set included 1,750 hashtags denoting specific places, with the majority referencing New Mexico (476), Utah (258), Idaho (208), and Kansas (231). Other places mentioned included Minnesota, Navajo Nation, North Dakota, Alaska, Oregon, Oklahoma, South Dakota, Washington, Ho-Chunk Nation, Bears Ears, and Washington, D.C.

In order to address RQ2, we examine the issues that coalesce around a few specific candidates who represented different political parties and were running for office at different levels of government. We chose to focus on Haaland (D-NMCD1) and Herrell (R-NMCD2) because they were both running for national office in the same state and because they represented the two major political parties in the U.S. We also selected Bergstrom (R-MN, running for Lieutenant Governor alongside gubernatorial candidate Jeff Johnson) and Flanagan (Democratic-Farmer-Labor candidate running for Minnesota Lieutenant Governor alongside gubernatorial candidate Tim Walz) as they represented two different parties running against each other for state office.

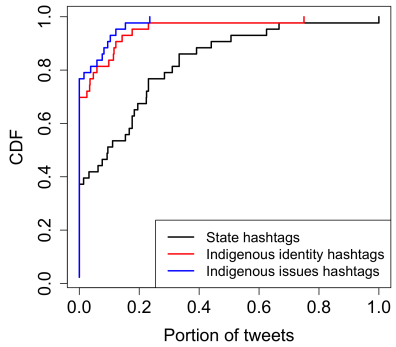


Fig. 1. Cumulative distribution of the portion of tweets generated by Native American candidates with verified user accounts that include hashtags that mention a state ($Median = 0.10$; $\sigma = 0.22$), Indigenous identity ($Median = 0.0$; $\sigma = 0.12$), or Indigenous issues ($Median = 0.0$; $\sigma = 0.05$).

Candidate	Nodes	Edges	Density	Med. Betweenness Centrality	Modularity	Issue Groups
Debra Haaland	952	10,308	0.02	4.5×10^{-6}	0.872	23
Yvette Herrell	245	2,482	0.08	0.0	0.70	18
Peggy Flanagan	503	11,817	0.10	1.6×10^{-5}	0.61	45
Donna Bergstrom	115	1,629	0.25	1.8×10^{-4}	0.69	10

Table 3. Overview statistics associated with the issue networks for each of the selected candidates.

6.2.1 Tweets by Candidates. We start by analyzing the tweets generated by Native American candidates with verified user accounts (43 user accounts). We examine the hashtags associated with each candidate and use the codebook generated from the Native American candidates top 100 hashtags and the NativeVote top 100 hashtags to filter tweets that contain hashtags that pertain to Indigenous identity or Indigenous issues. We also filter tweets that contain hashtags that include state abbreviations as part of the beginning of a text, for example, *#nmnpol* stands for New Mexico politics. We find that candidates are much more likely to tweet hashtags that include their state or their personal campaign slogan than hashtags that are signifiers of Indigenous identity or issues. We discuss the nuances behind the low incidence of hashtags associated with Indigenous identity and issues in Section 7.2.

Since only 0.2% of the tweets in the Native American Candidates data set are actually generated by candidates, we note that the top tweets in Table 2 are likely more representative about what the Twitter sphere is tweeting about candidates. For instance, *#maga* and variants are only used three times in tweets by Native American candidates, twice by Republican gubernatorial candidate Kevin Stitt (OK) who used the hashtag to directly align himself with President Trump and once by Democratic state senate candidate Victoria Steele (AZ), who used the hashtag as something that voters should take a stand against. When looking at the hashtags most frequently used by Native American candidates, we find that hashtags involving state abbreviations (e.g., *#nmpol*, *#ks03*) tend to be amongst the most commonly used, followed by hashtagged campaign slogans (e.g., *#peoplebeforepolitics* and *#oneminnesota*).

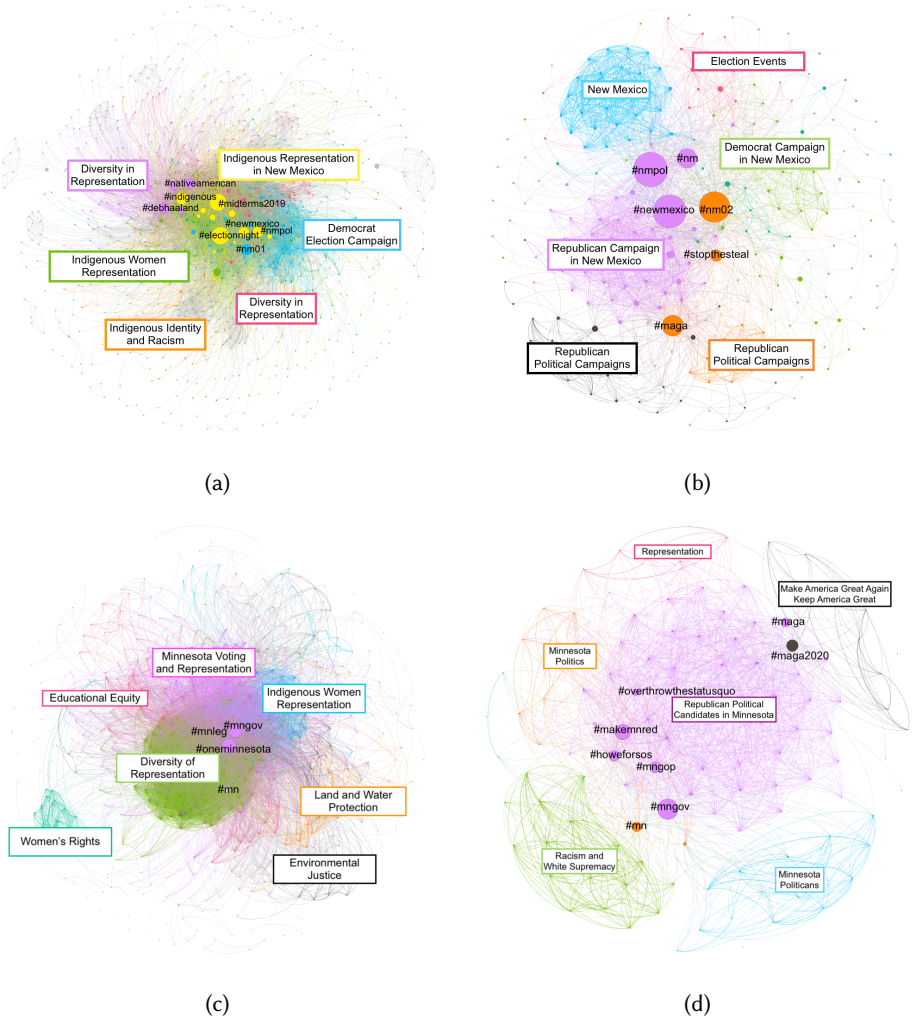


Fig. 2. Force directed visualizations of issue networks that form around (a) Debra Haaland, (b) Yvette Herrell, (c) Peggy Flanagan, and (d) Donna Bergstrom. Nodes are colored based on the modularity class they belong to as determined by the Louvain method. Sizes of nodes are determined by their betweenness centrality in the network.

In the following sections, we seek to understand the specific issue networks that coalesce around specific selected candidates as well as to quantify how issues tweeted by these candidates differ from the issues that people tweet in association with them.

6.2.2 Issue Networks Surrounding Candidates. We generate issue networks for each of the selected candidates using the method described in Section 5.2.1. In Table 3, we present the basic statistics associated with each candidates' issue network. We present annotated visualizations of these issue networks in Figure 2 using a force-directed layout with the same gravity parameters for each visualization. We find that Haaland and Flanagan (both of whom were successfully elected) have issue networks comprised of a larger number of hashtags than their non-elected counterparts. Both

Haaland and Flanagan also have a larger number of issue groups (as determined by the Louvain method) represented in their issue networks. For Haaland's issue network (Figure 2a), the issue groups are largely centered on representation and diversity in representation. The hashtags with the highest betweenness centralities are: *#electionnight*, *#midterms2019*, and *#indigenous*. In contrast, Flanagan's issue network (Figure 2c) is comprised of issue groups focusing on representation in addition to environmental justice, land and water protection, women's rights, and educational equity. The hashtags with the greatest betweenness centrality for Flanagan's issue network are much more state-focused: *#oneminnesota*, *#mngov*, and *#mnleg*.

In contrast to Haaland and Flanagan's issue networks, Bergstrom and Herrell's issue networks are smaller with fewer issue groups. When examining the distribution of betweenness centrality for each candidate's issue network, we find that the standard deviation for the betweenness centrality of Bergstrom and Herrell's issue networks are 2.1× and 3.5× greater than their respective counterparts. This spread skews towards larger betweenness centrality values for Herrell and Bergstrom's issue networks, indicating that they represent user bases that are not as robustly interconnected. The issue groups surrounding Herrell include Republican election campaigns, election events, and New Mexico. The hashtags with the greatest betweenness centraliy include: *#newmexico*, *#nm02*, and *#nmpol*. Issue groups in Herrell's issue network center on themes of representation, the MAGA campaign, New Mexico politics, and racism and white supremacy. Top hashtags by betweenness centrality in Herrell's issue network are: *#nmgov*, *#makenmred*, and *#maga2020*.

In particular, we note the density of Flanagan's issue network relative to its size. This is visually evident in Figure 2c, where the issue network has a densely clustered center with only a few nodes of relatively high betweenness centrality. This represents quantitative evidence of Flanagan's tightly run campaign, where even different issue groups comprised of different pools of users were tightly integrated through common hashtags.

6.2.3 Self-portrayal vs. Association. One of the phenomena we wanted to characterize was the extent to which the issues that the selected candidates associated with in their own tweets were the same as issues that people associated with them (i.e., issues that appeared in tweets that mentioned a candidate either in the text of the tweet, as a usertag, or as a hashtag). To do this, we identified the top 100 hashtags based on frequency, persistence, and pervasiveness that were tweeted by candidates and tweeted in association with candidates. These lists are indefinite, meaning they represent rankings that are non-conjoint (both lists may not contain overlapping elements), top-heavy (rankings at the top of the list are more meaningful than rankings at the bottom of the list), and incomplete (elements are not comprehensively representative of all possible elements in a domain). Given these properties, we compare similarities between these ranked lists using rank-biased overlap (RBO), which measures similarities between indefinite lists on a scale from zero to one where zero represents two disjoint lists and one represents identical lists [96]. We plot the RBO between the 100 most frequently occurring hashtags that appear in the tweets about our selected candidates and the tweets authored by them at list depths ranging from 1 to 100 in Figure 3. We find that hashtags associated with Haaland and Herrell tend to deviate significantly from the hashtags they uses in their own tweets, while Bergstrom and Flanagan tend to have a greater amount of overlap in how top hashtags are ranked. A potential explanation is that Haaland and Herrell were running for U.S. congressional positions, which may have led to a set of more geographically diverse users tweeting about them, whereas Bergstrom and Flanagan were running for state-level positions, though we leave this investigation to future work.

Additionally, we qualitatively categorized the top 100 hashtags created by the candidates, as well as the top 100 hashtags others created about the candidates. Compared to the Democratic candidates, Republican candidates Herrell and Bergstrom rarely used hashtags in their Twitter

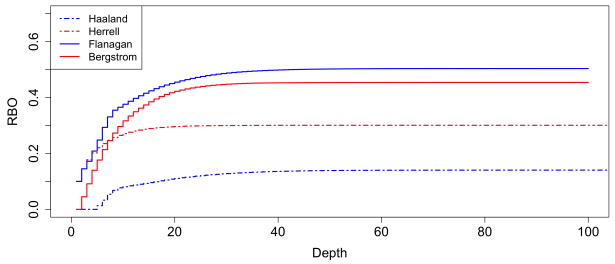


Fig. 3. Rank-biased overlap measuring similarity between the hashtags tweeted by candidates and the hashtags tweeted in association with candidates. Rank is determined by frequency of hashtag appearance.

discourse. Democratic candidates Haaland and Flanagan used hashtags to indicate not only places, events, issues, and campaign slogans, but also to evoke positive emotions by applying hashtags such as *#newday*, *#greaterthanfear* and *#galvanize.*

Where Haaland most often applied hashtags about issues of gender representation and Native American representation in her tweets, Twitter users most often associated her name with hashtags about Native American representation, making history (Davids and Haaland are the first Native American women to sit in Congress), representation of the state of New Mexico, and positive refrains such as *#sherepresents*, *#inspiration*, and *#heretostay*. Other issue-based hashtags that Twitter users associated with Debra Haaland's name included messages about the environment, diversity, missing and murdered Indigenous women, and healthcare.

Where Flanagan most often applied hashtags indicating place, encouraging voting, Native American representation (*#indigenouspeoplesday*, *#phenomenallyindigenous*) and gender representation (*#sherepresents*, *#womenandpower2018*, *#herstory*), Twitter users most often associated her name with hashtags about Minnesota (*#oneminnesota*, *#keepminnesotastrongandblue*) and with hashtags about a range of issues, including Indigenous representation, gender representation, sexual assault awareness (*#metoo*, *#believeher*, *#believewomen*), gun violence (*#gunsense*, *#woaii*, *#endgunviolence*), labor rights (*#aftvotes*, *#teamsters*), and the environment (*#stopline3*).

Bergstrom used only 65 hashtags. A little less than half of those were oppositional refrains such as *#overthrowthestatusquo* and *#turnironrangered.* The next sizable amount referenced her military background: *#ltcol2ltgov*. Less than a quarter were Republican campaign slogans such as *#mngop* and *#turnmnred.* Twitter users largely associated her name with Minnesota hashtags and with Republican Party campaign hashtags. An interesting subset of those campaign hashtags referenced *#maga* and *#kag*, which indicates President Trump's 2020 campaign slogan "Keep America Great." The next sizable amount of hashtags were comprised of refrains such as *#overthrowthestatusquo*, *#leadright*, and *#howwedoit*. Only 78 issue-based hashtags appeared in tweets about Donna Bergstrom, the most frequent of which included *#nativevote18* (19), *#sherepresents* (17), *#jobsnotmobs* (11), and *#trumpwomen2020* (8). A small amount of hashtags denoting racism (*#whitesupremacist* (5), *#whitenationalist* (4), *#whitenationalism* (3)) appeared in the data set. We also observed a set of five names of concurrently running Republican candidates also appeared in the data set, suggesting the use of a bot for retweet purposes.

Herrell used Twitter relatively sparingly during the period of data collection; she only wrote 23 tweets and applied 2 hashtags: *#nmpol* to indicated New Mexico politics and *#energy* to indicate the energy economy in New Mexico. Twitter users associated her name with New Mexico, and with lists of other Republican candidates and sets of 31 hashtags of names of places key to Republican

Data Set	Top 10 Hashtags (Frequency)
NA Candidates: Native Vote	*#nativevote18*(4,224); *#sherepresents* (2,246); *#nativevote* (871) ; *#nativeelectionnight* (799); *#gotv* (291); *#nmpol* (227); *#116thcongress* (202); *#utpol* (175); *#electionnight* (158); *#votethemout* (156)
General Native Vote	*#nativevote* (11,878); *#nativevote18* (2,168); *#ocetirising* (883); *#sherepresents* (881); *#northdakota* (836); *#votersuppression* (706); *#nativeelectionnight* (617); *#indigenous* (594); *#gotv* (525); *#vote* (515)

Table 4. Top 10 most frequently occurring hashtags in the *NativeVote* subset of the Native American (NA) Candidates data set and the General *NativeVote* data set. Note that there was a tie for the tenth position in the NA Candidates *NativeVote* data set.

gains during the election. These lists and sets suggest reliance on a campaign bot. Herrell's name was largely associated with Republican slogans such as *#maga*, *#walkawayfromdemocrats*, and *#votered*. Twitter users associated her name with a few issues, namely gun rights (*#nra*), jobs (*#jobsnotmobs*), border security (*#buildthewall*, *#supportice*), and pro-life policies (*#chooselife*), but the issue that dominated her Twitter stream pertained to Republication accusations of Democratic party election fraud (*#stopthesteal* and *#democratelectionfraud*). After the November election, a number of Republican candidates in various battleground states, including Florida, accused Democrats of rigging the elections. Herrell accused her opponent Xochitl Torres-Small (D-NMCD2) of election fraud after Herrell lost the election. Herrell requested a recount, which ultimately found Torres-Small to be the winner. Herrell's Twitter stream also included a smaller number of hashtags referencing this activity, including hashtags such as *#soreloser* and *#byefelicia* (a colloquial demand that someone leave the scene). Herrell, like Bergstrom, had a comparable 17 counts of *#sherepresents* and 17 counts of *#nativevote18*, which also suggests possible reliance on a campaign bot.

Qualitative analysis thus shows that Twitter users associated Democratic candidates Haaland and Flanagan with a far greater breadth of issues than the candidates tweeted about. Twitter users also associated Republican candidates Bergstrom and Herrell with *#maga* and *#kag* though neither candidate overtly referenced those hashtags themselves in their Twitter stream. Haaland and Flanagan applied various hashtags indicating representation of women and Native American peoples and issues, and Twitter users overwhelmingly associated them with these two issues of representation. Although Bergstrom and Herrell are also Native American women, Twitter users associated them with these two issues of representation far less often, and more often with Republican campaign slogans.

6.3 Intersection with and Divergence from *#NativeVote*

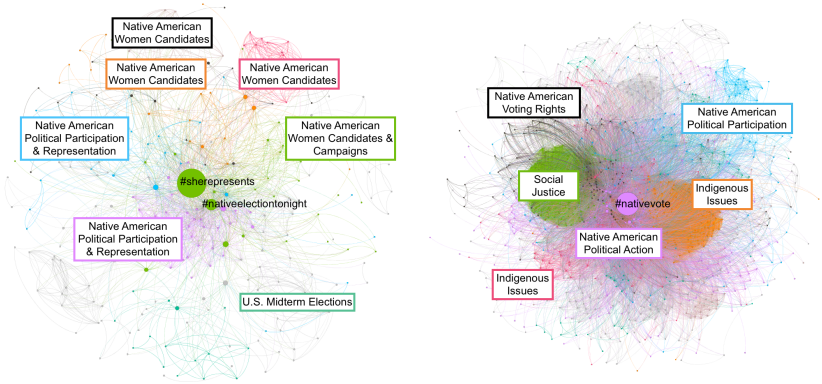
We address RQ3 by examining the extent to which tweets by and about Native American political candidates containing references to the *NativeVote* movement intersected with the larger *NativeVote* movement. We start by examining the 10 most frequently occurring hashtags in the *NativeVote* subset of the Native American Candidates data set and the General *NativeVote* data set in Table 4. We note that the haashtags in the Native American Candidates *NativeVote* data set tend to refer to political representation (*#sherepresents* and *#nativevote*), political action (*#gotv*[8], *#nativevote*, and *#votethemout*), election events (*#nativeelectionnight* and *#electionnight*), and regional and national politcs (*#nmpol*, *#utpol*, *#116thcongress*). In particular, the *#sherepresents* hashtag is encountered in 14.5% of the General *NativeVote* and occurs alongside *#nativevote18* in 24.4% of the tweets in which it appears.

While it is unsurprising that *#nativevote18* and *#nativevote* are the most frequenty occurring hashtags in the General *NativeVote* data set given the filters used to collect this data set, we find

[8]Get Out the Vote

NativeVote Data Set	Nodes	Edges	Density	Med. Betweenness Centrality	Modularity	Issue Groups
NA Candidates	285	2,046	0.05	0.0	0.86	23
General	950	28,279	0.06	7.0×10^{-7}	0.7	21

Table 5. Overview statistics of the issue networks associated with the *NativeVote* subgraph of the Native American Candidates data set and the General *NativeVote* data set.



(a) (b)

Fig. 4. Visualization of issue networks for (a) Native American Candidates *NativeVote* data set and (b) the General *NativeVote* data set. Nodes are colored based on the modularity class they belong to as determined by the Louvain method. Sizes of nodes are determined by their betweenness centrality in the network. We label hashtags that are visibly discernible as having relatively high betweenness centrality.

that many of the other hashtags tend to be more issue oriented than in the Native American Candidates *NativeVote* data set. Besides *#nativevote* and variants, the most frequently occurring hashtags in the General *NativeVote* data set relate to Indigenous issues such as land and water protection as noted by *#ocetirising* (reference to water protectors at the Oceti Sakowin protest camp in North Dakota); voter suppression (*#votersuppression*); representation and identity (*#sherepresents*, *#indigenous*, and *#nativeamericans*); and political action (*#gotv* and *#vote*). In addition to examining the top 10 hashtags, we use the RBO rank similarity metric to quantify the similarities in how hashtags are ranked in each data set based on frequency of occurrence. Examining the overlap between all hashtags in each data set, we find that the rank similarity converges around depth 33 at 0.43 similarity. This means that 0.43 of the observations in the lists are ranked in relatively similar positions.

Next, we examine the issue networks that form in the Native American Candidates *NativeVote* data set and the General *NativeVote* data set, as visualized in Figure 4a and 4b respectively. Not only are the themes associated with the issue groups qualitatively different in each issue network, but the general characteristics of the networks are quantitatively different as well, as summarized in Table 5. We find that the Native American Candidates *NativeVote* issue network is smaller, more sparsely connected, and comprised of more cohesive classes–or issue groups–based on the higher modularity score. *NativeVote* in this data set is largely associated with Native American women candidates from both major political parties in the U.S. While it is unsurprising that this data set is centered more on candidates than voters given our data collection methodology for this data set, it is significant that Native American women candidates are so central to the movement as it

is reflective of historical patterns of Native American women's role in governance. Even in issue groups with themes of Native American political participation, such as *#gotv* and *#vote* coincide strongly with themes of Indigenous representation and identity, such as *#buildnativepower* and *#sherepresents*.

In contrast, the General *NativeVote* issue network is larger, denser, and less modular. Three distinctive issue groups intermingle with many less distinctive groups. The largest issue group is centered on themes of Native American political action (i.e., voting) followed by an issue group centered on themes of social justice. These social justice themes are quite broad, and include references to the *#metoo* movement, *#voteforourlives*, *#blacklivesmatter*, LGBTQ rights, healthcare, environmental sustainability, and economic inequities. This issue group has many overlapping edges with the Native American Voting Rights issue group, which centers on Native American voter suppression (*#votersuppression*, *#votersuppressionisunamerican*, *#votingrights*, and *#nativeamericanrighttovote*) and the impact of Native American votes (*#nativevotescount*, *#urbanindianvote*) while also involving a focus on political action for the protection of land and water (*#waterislife*, *#flint*, *#indigenousfoodsovereignty*).

6.3.1 Voter Suppression and Voting Rights. When examining the most frequently occurring hashtags associated with the NativeVote data set, we find that the hashtag *#votersuppression* was the sixth most used in the data set. Upon further investigation, we found that six out of 20 issue groups identified in the issue network for the General NativeVote data set referenced voter suppression. When examining the coincidence network for this data set, we find that 23.2% of *#votersuppression* hashtags co-occurred with *#northdakota*. In order to examine this more closely, we filter tweets from the General *NativeVote* data set that include both *#northdakota* or the keyword "North Dakota" AND *#votersuppression* or *#votingrights* for qualitative analysis. In total, we identify 23 tweets that match this combination of filters.

It is important to identify that the Native American right to vote has historic and systemic undercurrents that delineates it from other claims of voter suppression. These challenges have affected and continue to affect Native Americans' full participation in the voting system, such as voter suppression in denying tribal identification cards, too few polling sites in rural and peri-tribal areas, voter dilution with redistricting, and disenfranchising Native American candidates [76]. Similarly, North Dakota's recent voter identification law required citizens to provide identification with a residential address rather than a post office box which unduly impacted Native Americans living in rural areas where street addresses are uncommon [80, 98]. While the tags and variants of tags that include *#votersuppression* and *#votingrights* appear 1,422 times in the NativeVote data set, they only appear 57 times in the Native American Candidates data set. This supports our finding that the issue network that forms in the Native American candidates *NativeVote* data set tends to be more focused on political action and representation, while the issue network that forms from the General *NativeVote* data set is more Indigenous-issue centric.

7 DISCUSSION

7.1 Representation

Analysis of issues present in the overall data set revealed frequent and persistent references to issues of representation, notably regarding political representation of Native Americans and Native American rights, women, voter rights, Black peoples and Black rights, and LGBTQ people and LGBTQ rights. *#sherepresents* appeared more pervasively and persistently than *#maga*, which as described above, was utilized in complex rhetorical fashion in this data set. This complex rhetoric resonates with Fox et al, which found that Native American women in leadership advocate for

issues that affect whole tribes and communities, adopting a holistic and representative approach, rather than by attempting to connect national values with individualistic needs [32].

Interestingly, in 2016 this research team attempted to study the dynamics and issues associated with the *#NativeVote* movement with regard to the U.S. presidential election, yet when we reviewed the results of our data at the time, any hashtags associated quantitatively or qualitatively with Native American voting were significantly absent. Two years later, observing the rise of Native American candidates seeking public office, and especially Native American women candidates, we note hashtags and tweets referencing the 2016 *#NoDAPL* movement, particularly in the prominence of hashtags such as *#ocetirising*, where Oceti Sakowin refers to both one of the 2016 activist camps as well as to the original Seven Council Fires of the Lakota, Nakota, and Dakota peoples, and *#standingrockthevote*, which refers to the Standing Rock Sioux Tribe, near where the majority of the 2016 DAPL protests occurred. We also note the prominence of hashtags referencing women, including feminist mantras such as *#sherepresents*, *#untamedandunapologetic*, and *#nativewomenlead*. While *#mmiw* did not appear in the top 100 most frequent hashtags in the NativeVote data set, it did appear at 103 in the list, with 61 hashtags. Notably, on March 14, 2019, Congresswoman Haaland wore red in solidarity with *#mmiw* while she heard testimony in the House Natural Resources Subcommittee regarding potential solutions around the crisis. She asserted how the "silent crisis of missing and murdered Indigenous women has been my top priority since long before being sworn into Congress," and described actionable policy changes, including substantiating the Violence Against Women Act and Savanna's Act to promote data collection and sharing, investigation, and prosecution of crimes against women [1, 2]. To have a Native American woman congressional representative address one of the most challenging issues facing Indian Country–an issue that has gone unnoticed and unremarked upon by federal authorities since the inception of the U.S.–expresses the human condition of what our analyses reveal, and what other feminist social media scholars note: individuals applying their gendered, politicized, and elected status to ground complex issues through structural changes in brick-and-mortar institutions [43] .

7.2 Impact of Indigenous Identity in a Political Sphere

When examining the degree to which Indigenous issues and identities were present in tweets by Native American candidates in Section 6.1, we were uncertain as to the degree to which Indigeneity would surface as a theme. This is another layer of complexity associated with Indigenous representation at higher levels of government: while Native American candidates are in a unique position to effect structural and systemic change, they must appeal to a broader audience in order to be elected. Depending on the social and political climate in a state or region, candidates may or may not feel empowered to identify strongly as Indigenous during a campaign. In tension with this, Native American candidates can be a significant impetus that drives Native American voters, particularly in areas where they can vote for a Native American candidate or where they might represent an influential voting bloc. Beyond the political impact of Indigenous identity, Trahant emphasizes that accurate news media portrayal of Native American candidates fundamentally changes the image of Indigenous people toward one that "represents an entirely new discourse, one that gives viewers a richer, more complex account of contemporary Native people [84]."

7.3 Toward a Holistic View of Content Propagation

A major finding of our research was the function of hashtags associating places with issues, slogans, and candidates. The application of place hashtags alongside issues hashtags affecting politically marginalized peoples effectively bridges social media issue groups, and connects disparate issue groups to candidates who represent people in places. This is important because while U.S. participatory politics is structured through state brick-and-mortar institutions and not through

social media, this research shows how social media messaging and connectivity relate to brick-and-mortar political engagement. In this study, frequently referenced places were states not typically noted in major national campaigns, but which resulted in what Connor refers to as a Native American swing vote [18]. These findings reflect prior literature that suggests that Native Americans who reside in states with reservations or who live on reservations tend to vote for candidates who represent issues immediately facing their tribes rather than issues as determined by nationalist needs, individualistic needs, or party lines [46, 67].

However, the rise of online bots and provocateurs and increased reliance on online sources (and social media to curate online sources) for gathering information about candidates and election news alters what information users in these spaces might encounter. Pernicious digital divides in rural and tribal lands limit the per capita bandwidth accessible to people in these areas, reducing the media richness available to voters who are seeking information while situated in these places [62, 94, 95]; the tendency for groups to rely on a single communication technology inhibits information diversity via exposure to diverse platforms [40]. In this light, social media content generated by bots and provocateurs take on a new role; not only do they compete with content generated by authentic accounts on an ideological basis, but they also compete for physical network transmission resources. Thus, we have included content that is likely generated by bots and provocateurs in our data sets (rather than attempting to filter them out) as they represent the information that a content consumer is likely to encounter, particularly given the challenges to media richness in places that experience digital inequities. Methodologically, considering media richness allows for a meaningful scholarly conversation between qualitatively-oriented social theorists and quantitatively-oriented social media network analysts, where the fruit of the interaction is a more holistic understanding of how the micro-level propagation of content through Twitter cumulatively relates to macro-level social changes, such as unexpected results of congressional elections.

7.4 Interdisciplinary Indigenous Feminist Practice in Social Media Research: Spotlighting a Spectrum of Issues and Empowering Activism

The complexity of the Native American candidates in 2018 disrupts stereotypes about Native Americans. The issues represented in the networks indicate the interrelated nature of issue groups, i.e., voter suppression, gender among women of color and Indigenous women, experiences of poverty and working class backgrounds. The findings of this research reinforce what Luka and Millette assert as an ethical and a scholarly need to include individuals from the researched social group in the methodological process; the knowledge needed to contextualize the social import of statistically significant patterns detected through network analysis depends to a great extent on lived experience and "insider" expertise [53]. We argue, in contrast to the position asserted in a panel at CSCW 2017 [38], that this nuanced descriptive approach is needed and "substantively impactful," particularly as it informs more proactive approaches that can be taken to empower social justice efforts and political action for marginalized groups. For instance, descriptive quantitative evidence of particularly effective information dissemination approaches for particular communities might be used to support "network gatekeepers" who work together to consolidate and amplify their interpretations of reality (like those identified by Stewart et al in their analysis of *#BlackLivesMatter*) or to craft "botivists" (activist bots proposed by Savage et al that call new volunteers to action in a movement) that are sensitive to the culture codes of particular groups involved in an online movement [74, 81].

The iterative mixed-method process of investigation revealed how it takes a discerning perspective to review various analyses of data sets multiple times throughout the investigation to detect findings that are significant across social, technical, and historical domains for the population in question, and additionally, to scope the data set as an expression of human agency which extends

beyond the Twittersphere. In light of the history of misinformation and disinformation shaping U.S. depiction of Native Americans, an Indigenous feminist ethics of care recognizes how social media data sets are models created by all of the actors in the data set, and does not assume that social media data sets indicate the so-called truth of Native Americans–which could be used to further marginalize this population–but rather interprets social media expressions within the broader lived experience of Native American peoples. Critically, our work highlights that having an activist-in-the-loop approach allows for a more nuanced understanding of concept drift (as evidenced by the use of *#nodapl* and *#ocetirising*) and the broader historical and cultural realities experienced by groups who work within brick-and-mortar and sociotechnical realms to increase representation. With respect to the call by Hecht et al for research agendas that seek to investigate civic technologies, we anticipate the the future of civic technologies for social activism require integration of an activist-in-the-loop approach in order to reduce burden on network gatekeepers critical to social movements.

8 CONCLUSION

In this study, we use an interdisciplinary Indigenous feminist approach to characterize 738,745 tweets from two data sets representing (i) tweets generated by and about Native American candidates and (ii) online participation in the *NativeVote* movement through the 2018 U.S. midterm election cycle. The resulting mixed methods analysis contributes to approaches that take into account racism, sexism, and colonialism when investigating social media discourse. Findings reflect the history of political participation in Indian Country for the last century: women in governance, white supremacy, voter suppression, the Native American vote as a swing vote in states with large Native American populations, and voting for tribal values rather than more individualistic agendas [98]. The study reveals that even though social media plays a role in boosting the circulation of issues of concern to marginalized peoples, once individuals attain positions of structural power, they still have to contend with structures of systematic oppression that inhibit citizen participation. Critically, this study demonstrates that in the age of highly-polarized political discourse, there is a need for more descriptive studies that capture the nuance of political engagement among historically marginalized populations who are represented by issues that are prioritized differently across the political spectrum.

REFERENCES

[1] 115th Congress. 2018. S.1942 - Savanna's Act. https://www.congress.gov/bill/115th-congress/senate-bill/1942.
[2] 116th Congress. 2019. H.R.1741 - Violence Against Women Extension Act of 2019. https://www.congress.gov/bill/116th-congress/house-bill/1741.
[3] Monica Anderson, Skye Toor, Lee Rainie, and Aaron Smith. 2018. Activism in the Social Media Age. http://www.pewinternet.org/2018/07/11/public-attitudes-toward-political-engagement-on-social-media/.
[4] Ahmer Arif, Leo Graiden Stewart, and Kate Starbird. 2018. Acting the Part: Examining Information Operations Within #BlackLivesMatter Discourse. *Proceedings of the ACM Human Computer Interaction* 2, CSCW, Article 20 (Nov. 2018), 27 pages.
[5] Julian Ausserhofer and Axel Maireder. 2013. National Politics on Twitter: Structures and Topics of a Networked Public Sphere. *Information, Communication & Society* 16, 3 (2013), 291–314.
[6] Marco Toledo Bastos, Cornelius Puschmann, and Rodrigo Travitzki. 2013. Tweeting Across Hashtags: Overlapping Users and the Importance of Language, Topics, and Politics. In *Proceedings of the 24th ACM Conference on Hypertext and Social Media (HT '13)*. Paris, France, 164–168.
[7] W. Lance Bennett. 2012. The Personalization of Politics: Political Identity, Social Media, and Changing Patterns of Participation. *The Annals of the American Academy of Political and Social Science* 644, 1 (2012), 20–39.
[8] Vincent D Blondel, Jean-Loup Guillaume, Renaud Lambiotte, and Etienne Lefebvre. 2008. Fast unfolding of communities in large networks. *Journal of statistical mechanics: theory and experiment* 2008, 10 (2008), P10008.
[9] Leticia Bode, Stephanie Edgerly, Chris Wells, Itay Gabay, Charles Franklin, Lew Friedland, and Dhavan V Shah. 2018. Participation in Contentious Politics: Rethinking the Roles of News, Social Media, and Conversation Amid Divisiveness.

Journal of Information Technology & Politics 15, 3 (2018), 215–229.

[10] Leticia Bode, Alexander Hanna, Junghwan Yang, and Dhavan V Shah. 2015. Candidate networks, citizen clusters, and political expression: strategic hashtag use in the 2010 midterms. *The ANNALS of the American Academy of Political and Social Science* 659, 1 (2015), 149–165.

[11] Yarimar Bonilla and Jonathan Rosa. 2015. #Ferguson: Digital protest, hashtag ethnography, and the racial politics of social media in the United States. *American Ethnologist* 42, 1 (2015), 4–17.

[12] Karlyn Kohrs Campbell. 2005. Agency: Promiscuous and Protean. *Communication and Critical/Cultural Studies* 2, 1 (2005), 1–19.

[13] Carlos Castillo, Mohammed El-Haddad, Jürgen Pfeffer, and Matt Stempeck. 2014. Characterizing the Life Cycle of Online News Stories Using Social Media Reactions, booktitle = Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing *(CSCW '14)*. Baltimore, Maryland, USA, 211–223.

[14] Jasmine Linabary Cheryl Cooky and Danielle Corple. 2018. Navigating Big Data dilemmas: Feminist holistic reflexivity in social media research. *Big Data Society* July-December (2018), 1–12.

[15] Zi Chu, Steven Gianvecchio, Haining Wang, and Sushil Jajodia. 2010. Who is Tweeting on Twitter: Human, Bot, or Cyborg?. In *Proceedings of the 26th Annual Computer Security Applications Conference*. 21–30.

[16] Meredith D. Clark. 2014. *To tweet our own cause: A mixed-methods study of the online phenomenon "Black Twitter"*. Ph.D. Dissertation. The University of North Carolina at Chapel Hill.

[17] Elanor Colleoni, Alessandro Rozza, and Adam Arvidsson. 2014. Echo Chamber or Public Sphere? Predicting Political Orientation and Measuring Political Homophily in Twitter Using Big Data. *Journal of Communication* 64, 2 (2014), 317–332.

[18] Thaddieus Connor. 2014. Exploring Voting Behavior on American Indian Legislation in United States Congress. *The Social Science Journal* 51, 2 (2014), 159–166.

[19] Michael Conover, Jacob Ratkiewicz, Matthew R Francisco, Bruno Gonçalves, Filippo Menczer, and Alessandro Flammini. 2011. Political Polarization on Twitter. *Proceedings of the Fifth International AAAI Conference on Weblogs and Social Media* 133 (2011), 89–96.

[20] Jennifer Robinson Daniel McCool, Susan Olsen. 2007. *Native Vote: American Indians, the Voting Rights Act, and the Right to Vote.* Cambridge University Press.

[21] Dorian Hunter Davis. 2017. Is Twitter a Generalizable Public Sphere?: A Comparison of 2016 Presidential Campaign Issue Importance Among General and Twitter Publics. In *Proceedings of the 8th International Conference on Social Media & Society (#SMSociety17)*. Toronto, ON, Canada, Article 31, 31:1–31:5 pages.

[22] Nicholet Deschine-Parkhurst. 2017. Protecting Oak Flat: Narratives of Survivance as Observed Through Digital Activism. *Australasian Journal of Information Systems* 21 (2017), 1–18.

[23] Camila Domonske. 2018. Many Native IDs Won't Be Accepted At North Dakota Polling Places. https://www.npr.org/2018/10/13/657125819/many-native-ids-wont-be-accepted-at-north-dakota-polling-places.

[24] Marisa Elena Duarte and Miranda Belarde-Lewis. 2015. Imagining: creating spaces for indigenous ontologies. *Cataloging & Classification Quarterly* 53, 5-6 (2015), 677–702.

[25] Marisa Elena Duarte and Morgan Vigil-Hayes. 2017. #Indigenous: A Technical and Decolonial Analysis of Activist Uses of Hashtags Across Social Movements. *MediaTropes* 7, 1 (2017), 166–184.

[26] Gunn Enli. 2017. Twitter as arena for the authentic outsider: exploring the social media campaigns of Trump and Clinton in the 2016 US presidential election. *European Journal of Communication* 32, 1 (2017), 50–61.

[27] Sheena Erete and Jennifer O. Burrell. 2017. Empowered Participation: How Citizens Use Technology in Local Governance. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17)*. Denver, Colorado, USA, 2307–2319.

[28] Robert Faris, Hal Roberts, Bruce Etling, Nikki Bourassa, Ethan Zuckerman, and Yochai Benkler. 2017. Partisanship, Propaganda, and Disinformation: Online Media and the 2016 US Presidential Election. *Berkman Klein Center Research Publication* (June 2017).

[29] Tom Feltwell, Jamie Mahoney, and Shaun Lawson. 2015. "Aye, Have a Dream #IndyRef": Use of Instagram During the Scottish Referendum. In *Proceedings of the 2015 British HCI Conference (British HCI '15)*. Lincoln, Lincolnshire, UK, 267–268.

[30] Emilio Ferrara, Onur Varol, Clayton Davis, Filippo Menczer, and Alessandro Flammini. 2016. The Rise of Social Bots. *Commun. ACM* 59, 7 (June 2016), 96–104.

[31] Peggy Flanagan. 2019. Peggy Flanagan Sworn in as MinnesotaâĂŹs Lieutenant Governor. https://mn.gov/governor/news/?id=1055-364497.

[32] Mary Jo Tippeconnic Fox, Eileen M Luna-Firebaugh, and Caroline Williams. 2015. American Indian Female Leadership. *Wicazo Sa Review* 30, 1 (2015), 82–99.

[33] Kiran Garimella, Ingmar Weber, and Munmun De Choudhury. 2016. Quote RTs on Twitter: Usage of the New Feature for Political Discourse. In *Proceedings of the 8th ACM Conference on Web Science (WebSci '16)*. Hannover, Germany,

200–204.

[34] Manish Gaurav, Amit Srivastava, Anoop Kumar, and Scott Miller. 2013. Leveraging Candidate Popularity on Twitter to Predict Election Outcome. In *Proceedings of the 7th Workshop on Social Network Mining and Analysis (SNAKDD '13)*. Chicago, IL, USA, 7:1–7:8.

[35] Douglas Hagar. 2015. #Vote4Me: The Impact of Twitter on Municipal Campaign Success. In *Proceedings of the 2015 International Conference on Social Media & Society (SMSociety '15)*. Toronto, Ontario, Canada, 19:1–19:7.

[36] D. Fox Harrell, Sarah Vieweg, Haewoon Kwak, Chong-U Lim, Sercan Sengun, Ali Jahanian, and Pablo Ortiz. 2017. Culturally-Grounded Analysis of Everyday Creativity in Social Media: A Case Study in Qatari Context. In *Proceedings of the 2017 ACM SIGCHI Conference on Creativity and Cognition (C&C '17)*. Singapore, Singapore, 209–221. https://doi.org/10.1145/3059454.3059456

[37] Brent Hecht and Monica Stephens. 2014. A Tale of Cities: Urban Biases in Volunteered Geographic Information. In *Eighth International AAAI Conference on Weblogs and Social Media*.

[38] Brent Hecht, Loren Terveen, Kate Starbird, Ben Shneiderman, and Jennifer Golbeck. 2017. The 2016 US Election and HCI: Towards a Research Agenda. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '17)*. Denver, Colorado, USA, 1307–1311.

[39] Libby Hemphill and Andrew J. Roback. 2014. Tweet Acts: How Constituents Lobby Congress via Twitter. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '14)*. Baltimore, Maryland, USA, 1200–1210.

[40] Marleen Huysman, Charles Steinfield, Chyng-Yang Jang, Kenneth David, Jan Poot, Ingrid Mulder, et al. 2003. Virtual Teams and the Appropriation of Communication Technology: Exploring the Concept of Media Stickiness. *Computer Supported Cooperative Work* 12, 4 (2003), 411–436.

[41] Jane Im, Eshwar Chandrasekharan, Jackson Sargent, Paige Lighthammer, Taylor Denby, Ankit Bhargava, Libby Hemphill, David Jurgens, and Eric Gilbert. 2019. Still out there: Modeling and Identifying Russian Troll Accounts on Twitter. *arXiv preprint arXiv:1901.11162* (2019).

[42] Indian Country Today. 2019. About Indian Country Today. http://https://newsmaven.io/indiancountrytoday/pages/about-indian-country-today-zzNHHkzlzEWFeg4RvKfKvQ/.

[43] Sarah Jackson. 2016. (Re)Imagining Intersectional Democracy from Black Feminism to Hashtag Activism. *Women's Studies in Communication* 39, 4 (2016), 375–379.

[44] Ajit Jain, Nic Lupfer, Yin Qu, Rhema Linder, Andruid Kerne, and Steven M. Smith. 2015. Evaluating TweetBubble with Ideation Metrics of Exploratory Browsing. In *Proceedings of the 2015 ACM SIGCHI Conference on Creativity and Cognition (C&C '15)*. Glasgow, United Kingdom, 53–62.

[45] Hayley Johnson. 2017. #NoDAPL: Social Media, Empowerment, and Civic Participation at Standing Rock. *Library Trends* 66, 2 (2017), 155–175.

[46] Benjamin Kahn. [n. d.]. A Place Called Home: Native Sovereignty Through Statehood and Political Participation. *Natural Resources Journal* 53 ([n. d.]), 1–53.

[47] Gabriel Sanchez Kimberly Huyser and Edward Vargas. 2017. Civic Engagement and Political Participation Among Alaska Natives and American Indians in the US. *Polit Groups Identities* 5, 4 (2017), 642–659.

[48] Rachel Kuo. 2018. Racial justice activist hashtags: Counterpublics and discourse circulation. *New Media & Society* 20, 2 (2018), 495–514.

[49] Koen Leurs. 2017. Feminist Data Studies: Using Situated Methods for Ethical, Reflexive, and Situated Socio-cultural Research. *Feminist Review* 115, 1 (2017), 130–154.

[50] Brian D. Loader and Dan Mercea. [n. d.]. Networking Democracy. ([n. d.]).

[51] Xiaodan Lou, Alessandro Flammini, and Filippo Menczer. 2019. Information Pollution by Social Bots. *arXiv preprint arXiv:1907.06130* (July 2019).

[52] Susana Loza. [n. d.]. Hashtag Feminism, #SolidaryIsForWhiteWomen, and the Other #FemFuture. *Ada: A Journal of Gender, New Media, and Technology* 5 ([n. d.]).

[53] Mary Elizabeth Luka and Melanie Millette. 2018. (Re)framing Big Data: Activating Situated Knowledges and a Feminist Ethics of Care in Social Media Research. *Social Media + Society* January-March (2018), 1–10.

[54] Jamie Mahoney, Tom Feltwell, Obinna Ajuruchi, and Shaun Lawson. 2016. Constructing the Visual Online Political Self: An Analysis of Instagram Use by the Scottish Electorate. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16)*. San Jose, California, USA, 3339–3351.

[55] Momin M Malik, Hemank Lamba, Constantine Nakos, and Jürgen Pfeffer. 2015. Population Bias in Geotagged Tweets. In *Ninth International AAAI Conference on Web and Social Media*.

[56] J. Nathan Matias. 2016. Going Dark: Social Factors in Collective Action Against Platform Operators in the Reddit Blackout. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16)*. San Jose, California, USA, 1138–1151.

[57] Yelena Mejova and Padmini Srinivasan. 2012. Political Speech in Social Media Streams: YouTube Comments and Twitter Posts. In *Proceedings of the 4th Annual ACM Web Science Conference (WebSci '12)*. Evanston, IL, USA, 205–208.
[58] Yelena Mejova, Padmini Srinivasan, and Bob Boynton. 2013. GOP Primary Season on Twitter: "Popular" Political Sentiment in Social Media. In *Proceedings of the Sixth ACM International Conference on Web Search and Data Mining (WSDM '13)*. Rome, Italy, 517–526.
[59] Corrado Monti, Alessandro Rozza, Giovanni Zappella, Matteo Zignani, Adam Arvidsson, and Elanor Colleoni. 2013. Modelling Political Disaffection from Twitter Data. In *Proceedings of the Second International Workshop on Issues of Sentiment Discovery and Opinion Mining (WISDOM '13)*. Chicago, IL, USA, 3:1–3:9.
[60] Jonathan Scott Morgan, Cliff Lampe, and Muhammad Zubair Shafiq. 2013. Is News Sharing on Twitter Ideologically Biased?. In *Proceedings of the 2013 Conference on Computer Supported Cooperative Work (CSCW '13)*. San Antonio, TX, USA, 887–896.
[61] Fred Morstatter, Jürgen Pfeffer, Huan Liu, and Kathleen M Carley. 2013. Is the Sample Good Enough? Comparing Data from Twitter's Streaming API with Twitter's Firehose. In *Seventh International AAAI Conference on Weblogs and Social Media*.
[62] Bonnie A. Nardi. 2005. Beyond Bandwidth: Dimensions of Connection in Interpersonal Communication. *Computer Supported Cooperative Work* 14, 2 (2005), 91–130.
[63] National Congress of American Indians. 2018. Every Native Vote Counts. http://www.nativevote.org/about/.
[64] OneMN. 2019. Shared Sustainable Prosperity for All. http://www.onemn.org/.
[65] Chang Sup Park. 2013. Does Twitter Motivate Involvement in Politics? Tweeting, Opinion Leadership, and Political Engagement. *Computers in Human Behavior* 29, 4 (2013), 1641–1648.
[66] Vern Paxson. 1997. End-to-end Internet Packet Dynamics. In *Proceedings of the ACM SIGCOMM '97 Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM '97)*. 139–152.
[67] Helen Petersen. 1957. American Indian Political Participation. *Annals of the American Academy of Political and Social Science* 311 (1957), 116–126.
[68] Kashif Jerome Powell. 2016. "The Year of the Ballot or the Bullet": A Discussion of Race, Revolution and the 2016 Election. *Women's Studies in Communication* 39, 4 (2016), 370–374.
[69] Daniele Quercia, Rossano Schifanella, and Luca Maria Aiello. 2014. The Shortest Path to Happiness: Recommending Beautiful, Quiet, and Happy Routes in the City. In *Proceedings of the 25th ACM Conference on Hypertext and Social Media (HT '14)*. Santiago, Chile, 116–125.
[70] Nathan Rambukkana. 2015. *Hashtag Publics: The Power and Politics of Discursive Networks*. Peter Lang Publishing.
[71] Katie Reilly. 2018. A New North Dakota Law Threatened Native American Votes. They Responded By Turning Out in Historic Numbers. http://time.com/5446971/north-dakota-native-american-turnout/.
[72] Gabriel Sanchez. 2018. The Native American ElectorateâĂŹs Role in the Blue Wave Referendum on President TrumpâĂŹs Policy Agenda.
[73] Ray Sanchez and Carma Hassan. 2019. Report finds no evidence of 'offensive or racist statements' by Kentucky students. https://www.cnn.com/2019/02/13/us/covington-catholic-high-school-report/index.html.
[74] Saiph Savage, Andres Monroy-Hernandez, and Tobias Höllerer. 2016. Botivist: Calling Volunteers to Action Using Online Bots. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16)*. 813–822.
[75] Rossano Schifanella, Alain Barrat, Ciro Cattuto, Benjamin Markines, and Filippo Menczer. 2010. Folks in Folksonomies: Social Link Prediction from Shared Metadata. In *Proceedings of the Third ACM International Conference on Web Search and Data Mining (WSDM '10)*. New York, New York, USA, 271–280.
[76] Jean Schroedel and Ryan Hart. 2015. Vote Dilution and Suppression in Indian Country. *Studies in American Political Development* 29, 1 (2015), 40âĂŞ–67.
[77] Bryan C. Semaan, Scott P. Robertson, Sara Douglas, and Misa Maruyama. 2014. Social Media Supporting Political Deliberation Across Multiple Public Spheres: Towards Depolarization. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '14)*. Baltimore, Maryland, USA, 1409–1421.
[78] Luke Sloan and Jeffrey Morgan. 2015. Who tweets with their location? Understanding the relationship between demographic characteristics and the use of geoservices and geotagging on Twitter. *PloS one* 10, 11 (2015), e0142209.
[79] Aaron Smith and Monica Anderson. 2018. Social Media Use in 2018. http://www.pewinternet.org/2018/03/01/social-media-use-in-2018/.
[80] Daniel E. Smith. 2018. *Voter Suppression Policies in the 2016 Campaign Cycle*. Springer International Publishing, 27–42.
[81] Leo Graiden Stewart, Ahmer Arif, A. Conrad Nied, Emma S. Spiro, and Kate Starbird. 2017. Drawing the Lines of Contention: Networked Frame Contests Within #BlackLivesMatter Discourse. *Proceedings of the ACM on Human Computer Interactions* 1, 96, Article 96 (Dec. 2017), 23 pages.
[82] Tim Walz for Governor. 2019. Together For One Minnesota . https://walzflanagan.org/.
[83] Mark Trahant. [n. d.]. She Represents: A survey of Native American women who've been elected. ([n. d.]).

[84] Mark Trahant. 2018. Candidate's Politcal Ads are Changing the Very Image of Native People: #NativeVote18 Stereotypes are Shattered Every Time a Campaign Commercial is Produced and Aired. *Indigenous Policy Journal* 29, 1 (2018).
[85] Mark Trahant. 2018. #NativeVote18 Candidates are Boosted by an Electorate Ready for Change. *Indigenous Policy Journal* 29, 1 (2018).
[86] Mark Trahant. 2018. Trahant Reports. https://trahantreports.com/.
[87] Daniel Trottier and Christian Fuchs. 2014. *Social media, politics and the state: protests, revolutions, riots, crime and policing in the age of Facebook, Twitter and YouTube.* Routledge.
[88] Zeynep Tufekci. 2014. Big Questions for Social Media Big Data: Representativeness, Validity and Other Methodological Pitfalls. In *Eighth International AAAI Conference on Weblogs and Social Media.*
[89] Twitter Developer. 2018. Filter realtime Tweets. https://developer.twitter.com/en/docs/tweets/filter-realtime/guides/connecting.html.
[90] Twitter Public Policy. 2018. Update on TwitterâĂŹs review of the 2016 US election. https://blog.twitter.com/official/en_us/topics/company/2018/2016-election-update.html.
[91] Edward Valandra. [n. d.]. U.S. Citizenship: The American Policy to Extinguish the Principal of Lakota Political Consent. *Wicazo Sa Review* 8 ([n. d.]).
[92] Onur Varol, Emilio Ferrara, Clayton A Davis, Filippo Menczer, and Alessandro Flammini. 2017. Online Human-bot Interactions: Detection, Estimation, and Characterization. In *Eleventh International AAAI Conference on Web and Social Media.*
[93] Maurice Vergeer. 2013. Politics, elections and online campaigning: Past, present . . . and a peek into the future. *New Media & Society* 15, 1 (2013), 9–17.
[94] Morgan Vigil, Elizabeth Belding, and Matthew Rantanen. 2016. Repurposing FM: Radio Nowhere to OSNs Everywhere. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16).* San Francisco, California, USA, 1260–1272.
[95] Morgan Vigil-Hayes, Marisa Duarte, Nicholet Deschine Parkhurst, and Elizabeth Belding. 2017. {Indigenous: Tracking the Connective Actions of Native American Advocates on Twitter. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW '17).* Portland, Oregon, USA, 1387–1399.
[96] William Webber, Alistair Moffat, and Justin Zobel. 2010. A Similarity Measure for Indefinite Rankings. *ACM Transactions on Information Systems* 28, 4, Article 20 (Nov. 2010), 38 pages.
[97] Jen Weedon, William Nuland, and Alex Stamos. 2019. Information Operations and Facebook. https://fbnewsroomus.files.wordpress.com/2017/04/facebook-and-information-operations-v1.pdf.
[98] Stephanie Woodard. 2018. *American Apartheid: The Native American Struggle for Self-Determination and Inclusion.* Ig Publishing.
[99] Hang Zhang and Vinay Setty. 2016. Finding Diverse Needles in a Haystack of Comments: Social Media Exploration for News. In *Proceedings of the 8th ACM Conference on Web Science (WebSci '16).* Hannover, Germany, 286–290.

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