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# Digital Dimensions of Conflict

## Analyzing Malian conflict and violence through Social Media and Mixed-Methods Approach

*Jelena Prokic, Luca Bruls, Mirjam de Bruijn*

**Abstract**

*Since 2012, conflicts accompanied by escalating violence have spread across the Sahel region, making it one of the most violent areas in the world. It is perhaps no coincidence that 2012 also marks the period when social media began to gain significant traction in the Sahel. In this paper we explore how conflict narratives are shaped on Malian Twitter. Mali is one of the core areas of Sahelian conflicts. The paper uses a dataset of the Malian Twittersphere that was published in 2023. The approach combines computational methods (NLP) and ethnographic analysis. This method helps to read the big data set in a specific context and a socio-politically informed manner. The conclusions show that Twitter has a tendentious conflict discourse, that centers on (inter)national politics and generally supports the government. It is grounded in the real conflict events on the ground, but also relates to international discussions.*

**Keywords**

*Conflict, Social Media, Twitter, Mali, Computational Ethnogrpahy*

## Introduction

Our aim in this article is to demonstrate the social significance of Twitter (now X) in the popular interpretation of conflicts in Mali. Twitter is a popular media platform where diverse actors post and exchange messages, and it has gradually gained influence in Mali's media landscape since 2009. Twitter has since been rebranded as X, however in this article we use the term 'Twitter' because our dataset was compiled prior to the name change. We are interested whether and how Twitter contributed to the mediatization of conflict resulting in 'conflict imaginaries' (Stupart/Ahmed 2025) that influence interpretations of conflict by the Malian population and how these in some instances lead to action in conflict. We focus on tweets posted between 2019 to 2022 using a publicly accessible database (Schroeder et al. 2023). The conflict in Mali started in 2012, but conflict

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events have intensified after the second coup led by colonel (now president) Assimi Goïta in May 2021. Political conflict and violence against civilians have been on the rise ever since.

Conflicts are multi-layered (Cordell/Wolff 2010), as they are shaped by local, national, regional, and global conditions. Conflict layers are entangled and woven into the digital fabric of social media. We argue that the digital is a fifth layer of conflict that equally may steer interpretations of the conflict. The digital layer of conflict resonates in the work of Merrin (2019) who introduced the concept of 'digital participatory warfare'.[1] Other studies look at the role media plays in broadcasting conflict and peace, as well as how new forms of communication alter the social construction of conflict (Budka/Bräuchler 2020: 10). Digital participatory warfare suggests that the digital dimensions of conflicts, and the participation and usage of communication devices and platforms, like mobile telephones, smartphones, and social media, have become an integral part of waging armed conflict. People become actors in conflict through their phone-based activities and the creation of posts that engage with different layers of the conflict (Ford/Hoskins 2022; Norman et al. 2024), or at least with an imaginary of the war and conflicts that informs actions and alliances in conflicts on the ground. In this study we uncover the digital traces of the Malian conflict on the social media platform Twitter. We question if and how Twitter is part of the war ecology that is defined by digital participatory war in Mali.

Digital traces of conflict and war are social media messages that contain war/conflict related information. Such messages that shape conflict are for instance disinformation and hate speech (Gargliardone 2019; Orgeret et al. 2025), but they can also be cultural worldviews, values, and ideologies. Keles et al. (2022: 20) state that we can read peoples' attempt to gain power in linguistic and visual expressions. Messages that at first view are not per se 'weapons' (Gray/Guay 2019), but that do legitimize conflict and polarization, are a motor of conflict (Barberá 2018). They may be labeled cultural violence: "those aspects of culture, the symbolic sphere of our existence—exemplified by religion and ideology, language and art, empirical science and formal science (logic, mathematics)—that can be used to justify or legitimize direct or structural violence" (Galtung 1990: 291). With our research on the inter-relatedness of Twitter messaging, online action, and conflict practice, we, thus, trace digital forms of cultural violence.

Studies of social media platforms are most often either based on quantitative analyses of social media platforms like Twitter, without taking into consideration the context in which posts are embedded. Or they are based on qualitative analyses that follow specific actors or discuss posts through discourse analysis. Rare are studies that combine both approaches. Our interdisciplinary team aims

1 Conflict refers to the broader power struggles, while war is an expression of such struggles, i.e. organized armed violence.

to integrate these two approaches to better understand social media dynamics. Jelena Prokic is a computational linguist, with extensive experience in integrating computational methods with data from the humanities. Mirjam de Bruijn is an anthropologist with deep knowledge of Mali and the conflict. She has been working in Mali since 1990. Luca Bruls is an anthropologist with experience in qualitative analysis of social media. We each sought to extend our disciplinary approaches, because the qualitative approach cannot cover all that is happening on the platforms and risks to be caught in algorithms (cf. Bruls/de Bruijn 2025), while the quantitative analysis may give a superficial and inaccurate image of the situation on the ground.[2]

After the sections in which we explain the Malian conflict, and local Twitter usage, we further explain our methodology. We conclude to answer the question how Twitter can be seen as a fifth layer in the conflict representing the digital communication sphere and as an imaginary of the Malian conflict.

## The Malian Conflict(s)

Most analysts situate the outbreak of the Malian conflict in 2012, when jihadi groups occupied the north of Mali and a coup in March 2012 toppled the government (Lecocq et al. 2013). The coup was of short duration and followed by a transitional government and the eventual election of Ibrahim Boubacar Keïta (IBK) in 2013. Meanwhile, armed militias formed by agriculturalists, pastoralists, and al-Qaida began to operate in the north and center of Mali and aimed to go south (OECD/SWAC 2022, cf. International Crisis Group ICG 2012). Operation Serval, a French military counterinsurgency organization, intervened in January 2013 and settled more permanently under the name Operation Barkhane from 2014 until August 2022, when the last French base was dismantled. Together with FAMa (*Forces Armées Maliennes)* they meant to push back the armed militias. But clashes with jihadist groups and intercommunal tensions between self-defense militias and the state aggravated. Especially from 2015 onward, central Mali became the epicenter of conflict. At that time, the jihadist group ISGS (Islamic State in the Greater Sahara) was formed, followed by JNIM (*Jama'at Nusrat al-Islam wal-Muslimin,* Support Group for Islam and Muslims) in 2017. The increasing number of violent actors led to an escalation of armed attacks, civilian victims, and military offensives (Acled 2020[3]). In August 2020, a group of colonels dissatisfied with the handling of the security situation organized a coup. In May 2021, during a second coup, they removed the interim government from power and placed Assimi Goïta at the head of the nation. ECOWAS (Economic Community of West African States)

2 They worked together in the programme DDMAC (https://decodingdigitalmedia.org/) in a team of Malian, Ethiopian, Dutch and Norwegian colleagues.

3 htpps://acleddata.com/report/mali-any-end-storm

subsequently sanctioned Mali, which had a direct effect on the economy. Criticisms from France further crumbled the support they had among Mali's government. Malian authorities sought military ties with Russia, leading to the signing of an agreement with the paramilitary group Wagner in September 2021 (International Crisis Group 2023[4]). The Wagner group first set foot in Mali in January 2022 and became active with the military in North and Central Mali. In February 2022, the French government officially declared a retreat of Operation Barkhane, but it took until August 2022 before they completely left Malian soil. These developments were accompanied by the expulsion of the French media, *RFI* and *France 24*, in March 2022. At the end of May 2022, FAMa and the Wagner group killed over three hundred civilians in Moura under the guise that they were jihadists (Human Rights Watch 2022[5]). It is in this period that the collection of Twitter data used in this study was finished.

The conflict in Mali originates from the political economic discrepancy between urban and rural regions, the corruption of the elites, the elected governments that not all Malians support, and the presence of valuable mineral resources that raised the interest of new geopolitical actors (Thurston 2020/van Dijk/de Bruijn 2022). The result is a multi-layered conflict with fights between herders and farmers, atrocities against civilians, the national strife for power as demonstrated by the coups, interventions of external actors, such as the French and the Wagner group, and the geopolitical interests in the Malian resources (eg. gold, lithium and the possibility to find oil) or the war on terror.

Malians differed widely in how they explained the causes of the violence, often relying on social media narratives due to limited access to reliable information from the battlefield. Over time, the "war on terror" frame became dominant, with violence increasingly attributed to terrorists and jihadists, often linked to ethnic identities, contributing to growing ethnic polarization (cf. Togola/de Bruijn 2023, Bruls/de Bruijn 2025). At the same time, France and later the UN mission were increasingly blamed for their inability to stop the violence, leading to frequent protests against both actors in 2019. Discontent with the government of Ibrahim Boubacar Keïta further fueled protests in Bamako and helped create the conditions for the 2020 military coup. The military leadership successfully promoted its own narrative of order and sovereignty, gaining broad popular support, reinforced by the arrival of Russia as a new ally. Voices critical of the military, particularly those from communities directly affected by violence, were faced with a shrinking space to express dissent. Press freedom declined sharply, political opposition was silenced, and by 2022 much of the population continued to support the military leadership. Against this backdrop, we examine how these shifting interpretations and silences are reflected on Twitter, which has become a central source of information for the Malian population.

4 www.crisisgroup.org/africa/sahel/mali/b185-mali-eviter-le-piege-de-lisolement

5 "Mali: Massacre by Army, Foreign Soldiers", Human Rights Watch, 5 April 2022

## The Malian Twittersphere

Social media became increasingly available in Mali over the years of conflict. Wireless Internet commenced in 2009, with a consequent growth of Facebook usage (Keita et al. 2015). WhatsApp also grew in popularity, followed by Twitter and finally TikTok. Social media are valuable information channels in the media landscape of Mali. Radio remains the main medium for Malians, however, many radio stations rely on social media for information. Social media platforms are an important source of information for journalists, due to the inaccessibility of conflict regions for journalists and the lack of resources to gather primary data. Although Twitter has a small number of users in Mali, its messages often circulate across other platforms and vice versa. Within the entire Malian mediascape, Twitter is the platform that most closely resembles a news medium, although it does not consistently adhere to the professional standards and ethical guidelines of traditional journalism. Twitter gained this authority among Malian urban literates as they could not rely on other media (Mutsvairo et al. 2026).

At the time of data collection, Twitter is a public platform where users are limited to 280 characters per tweet.[6] They can respond to, retweet, and like posts. These features enable users to form social connections and build online communities, much like on other digital platforms (Miller 2012; Boellstorff 2010). Twitter's main feed continually updates and adds new tweets. Users can follow profiles and feeds are updated based on algorithmic recommendations and followed pages. Hashtags also function to group tweets topically. It is not only the hashtags but also retweets and tagging of popularly followed accounts that allow them to share topical interests. Because of the concentration of similar topics in one place and the social features to share concerns, Breslin et al. argue that "Twitter cannot be seen as a single monolithic platform; rather, there are multiple Twitters with different affective and social norms" (Breslin et al. 2020).

In our previous social network analysis of the Twitter space in Mali, we concluded that the network of Twitter users consists mostly of young male urban residents from Mali, also in conflict regions. Diaspora users are smaller in number, but they tweet as much as Malians. Most users primarily engage by following and retweeting, while a smaller group of Malians affiliated with government or news agencies are active in tweeting and are the most widely followed. Twitter in Mali is predominantly used by literate elites. These elites consist of politicians, news channels, bloggers, and NGOs; actors who play a role in shaping public opinion (for an elaboration on these findings, see de Bruijn et al. 2025).

6 The limit of characters changed to 4000 for X Blue subscribers in February 2023, which occurred after data collection had ended.

## Mixed-Methods Approach

While our previous study (de Bruijn et al. 2025) analyzed the metadata of tweets and user accounts and therefore did not provide insights into tweet content or narratives, the current study shifts the focus to a systematic analysis of the content of tweets themselves. We adopted a mixed-methods approach that combines computational text analysis with close reading and deep contextual knowledge of the conflict in Mali (domain expertise). The purpose of the text mining component is to identify patterns, trends, and general tendencies across a large corpus of tweets, allowing us to gain a macro-level understanding of discourses within the Malian Twitter-sphere. However, computational methods alone cannot fully capture the meanings, cultural references, and contextual subtleties embedded in individual tweets, nor can it give meaning to tendencies or frequencies it finds. To address this limitation, we incorporated close reading, which enables us to zoom in on specific tweets or interactions for a more detailed, qualitative analysis. "Domain expertise", extended knowledge of a particular field, is an essential prerequisite for data mining and the evaluation of computational analysis, because it enables researchers to recognize local patterns as well as identify limitations to the validity and reliability of the data (McCue 2015; Nguyen et al. 2020). Close reading helps to uncover the discursive strategies, emotional tones, and rhetorical devices employed by users, while also situating tweets within their social, political, and linguistic contexts. The integration of these two methods allows for a more holistic and robust interpretation of the data, balancing quantitative generalization with qualitative depth. During our research we went back and forth between the results of these two analyses to interpret and scale symbolic patterns, social dynamics, and interactions.

Our approach differs from nethnography (Pink 2015; Kozinets 2010; Hine 2015), which involves the ethnographic study of meaning-making processes and social interactions in online environments. Contrary to this approach, we did not do interviews with Twitter users or participant observation in the cultural setting through acts of tweeting, retweeting, or commenting. Rather, we took an observational and distant approach by interpreting social media conversations. We followed internet-mediated communication, mapped the context, traced genealogies of information, kept a diary, and created archives consisting of people's online activity. We were able to validate computational data with in-depth and context-sensitive observations.

## The Data Set

For this analysis of conflict and Twitter we have made use of a data set of the Malian Twittersphere that originates from the research conducted by Daniel Schroeder, Mirjam de Bruijn, Luca Bruls and colleagues (Schroeder et al. 2023).[7] The dataset comprises approximately 10.6 million tweets. Based on automatic language classification, the majority are in French (≈ 66%), followed by English (≈ 16%), with the remainder in various other languages. Data collection of tweets and accompanying metadata was carried out between February 4th 2022 and June 24th 2022, when the Twitter API still allowed researchers to collect user data. During this period, the data was collected retrospectively, covering tweets from September 2007 through mid-June 2022. Computational methods were combined with domain expertise to gather a valid representation of the national Twittersphere. The published dataset consists of Twitter IDs, user accounts, and the follower network. The data shows that the usage of Twitter increased over the examined time, with exponential growth in 2020, 2021, and 2022 (see Figure 1). This trend may reflect both a growing adoption of Twitter in Mali and the limitations of backward scraping, which is known to underrepresent historical data due to tweet deletions, account suspensions, and other data loss factors (Zubiaga 2018).

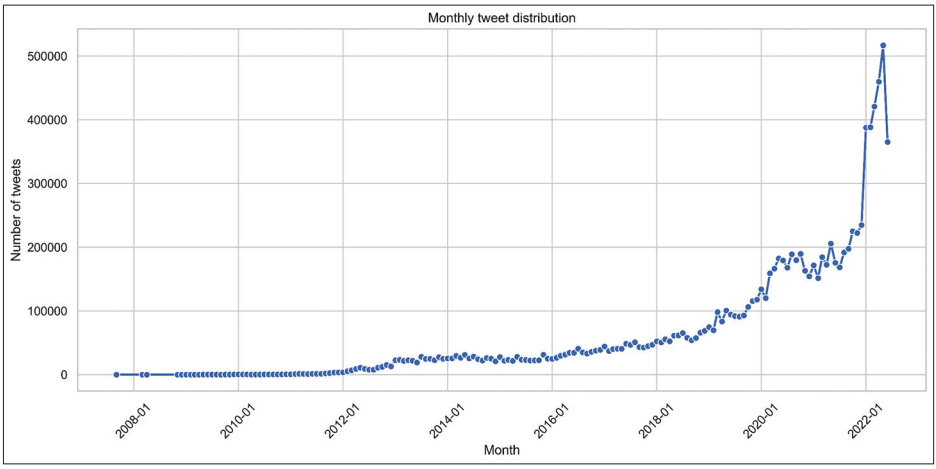


*Figure 1: Monthly tweet distribution in our dataset*

For the purposes of the present study, we restrict our analysis to French-language tweets (≈ 66% of all tweets in the data), as French is the predominant language of the dataset. While tweets in other languages are present, they are less likely to be authored by users located in Mali or to be related to Malian political or social

7 The dataset is available at https://osf.io/mj2qt/

contexts. Due to the way the data were collected, based on network connections and user interactions rather than geotagging or declared locations, it is not always possible to determine the geographic origin of tweets with hundred percent accuracy. However, based on linguistic and contextual inference, it is reasonable to assume that non-French tweets are less central to the Malian Twittersphere.

## The Period of Enquiry

The focus of our analysis of the Twittersphere is the period from January 2019 to June 2022. In this period national politics of Mali went through a turbulent time, and especially after 2021 violence against civilians increased. How does Twitter inform its public about the conflict in these years? To address this question, we investigate which conflict-related events become visible or invisible in Twitter discourse, and how they are framed through dominant narratives, sentiments, and patterns of attention over time. We combined both general (unguided) and guided search strategies. The general search involved identifying main topics (*topic modelling*) and frequently used terms that emerged organically from the dataset through *frequency* and *keyword analyses*. In parallel, we conducted a *guided lexical frequency analysis*, informed by a curated list of key events that occurred in Mali during the study period (2019–2022).

## Computational Analysis

### General Search

#### Topic modelling: main themes

To discover the main themes discussed in the Malian Twittersphere we used Latent Dirichlet Allocation (LDA) topic modelling (Blei et al. 2003). LDA is an unsupervised machine learning technique that identifies latent topics in a collection of documents by clustering words that frequently co-occur. In our analysis, each tweet is treated as a separate document, enabling us to model topic distributions across individual tweets.

Given the informal and specific linguistic features of Twitter, including misspellings, abbreviations, emojis, and shortened syntax, we applied several preprocessing steps. We removed emojis, URLs, and high frequency stop words, which often carry little semantic weight in topic modelling. Furthermore, we restricted our analysis to nouns, adjectives, and verbs, as these parts of speech are most informative for capturing the substance and sentiment of the tweets. This approach allowed us to capture the diversity of topics discussed on Twitter, providing a broad overview of the dominant themes and discourses present in the dataset.

### Frequency analysis: shows what dominates the conversation

We conducted a frequency analysis for each year in the dataset to gain further insight into the most frequently discussed topics over time. Specifically, we extracted the most frequent nouns, verbs, and named entities[8] that refer to specific names of people, organizations, places, and other proper nouns. Frequency analysis treats words as individual units. This allowed us to identify key themes, actors, and actions dominating the discourse in each period. We chose to split the analysis by year. This temporal segmentation ensures that the results are not skewed by periods of higher or lower Twitter usage and allows for a more accurate comparison of thematic trends across different years. Frequency analysis shows us what is prominent in a given year, not necessarily what is specific or unique to it. To capture those distinctions, words that stand out statistically in one year compared to others, we rely on keyword analysis.

### Keyword analysis: shows what matters, even if it is not loud

Keyword analysis is a method used in corpus linguistics to identify words that are statistically more prominent or distinctive in one set of texts (the focus corpus) compared to another set (the reference corpus) (Stefanowitsch 2020). Rather than simply looking at raw frequency, keyword analysis highlights which words are unusually frequent in the focus corpus relative to what would be expected based on their frequency in the reference corpus. It is sensitive to framing, concern, and emerging issues and is good for detecting salient themes before they become dominant.

To identify terms that are particularly characteristic of specific time periods, we applied keyword analysis using the chi-square statistical test. This method compares the frequency of each word in a focus corpus (e.g., tweets from a specific year) to its frequency in a reference corpus (e.g., tweets from all other years) and determines whether its distribution is statistically significant. The chi-square test is well-suited for this task because it evaluates whether the observed frequency of a word in the focus corpus deviates meaningfully from what would be expected by chance, based on its frequency in the reference corpus. The resulting keywords are not necessarily the most frequent words overall, but rather those that are characteristic or distinctive of the focus corpus.

By isolating these distinctive words, keyword analysis reveals topics and themes that are particularly relevant or salient within a given year, in contrast to more general topics that persist across multiple years. This temporal differentiation helps to understand how discourse evolves over time, and highlights period-

8 'Named entities' is a standard term in text mining referring to identifiable elements in text, typically proper nouns (e.g., persons, organizations, locations), but also including categories such as dates and monetary expressions.

specific concerns, events, or rhetorical shifts that may not be visible through frequency analysis alone.

## Guided lexical frequency analysis

In addition to broad topic analysis, we also zoom in on key political, social, and military events in Mali during the period 2019–2022. For these predefined events, we calculate their relative frequency per month, which allows us to directly observe how the intensity of discussion around each case fluctuates over time. This temporal tracking enables us to examine whether spikes in attention correlate with major developments on the ground, such as coups, international interventions, or shifts in diplomatic relations.

By identifying peak months of activity for each term, we can sample and closely read representative tweets from those periods. This provides insight into the sentiment, tone, and framing of the discourse, helping us understand how specific actors or issues were perceived during key moments. This combined quantitative–qualitative approach allows for a more nuanced interpretation of the role certain events and actors played in the evolving narrative landscape of the Malian Twittersphere.

To guide our analysis of the Malian Twittersphere, we compiled a list of major violent and political events (2019–2022) widely reported in international media and by international organizations. The timing and framing of these events informed our interpretation of shifts in online discourse.

Key violent events include the Ogossagou massacres (March 2019 and February 2020), which killed over 170 people and led to the resignation of the Maïga government;[9] the Sobane Da attack (June 2019) and the Moura massacre (March 2022), in which around 500 deaths were reported and which contributed to the Malian government's demand for MINUSMA's withdrawal.[10] We also considered prolonged blockades of towns, notably Farabougou (October 2020–October 2022), controlled by jihadist groups.[11]

Central political events include the military coup in August 2020 bringing Assimi Goïta to power, subsequent ECOWAS sanctions, escalating tensions with

9 The massacres were broadly covered in the international media: *BBC, Guardian, Al Jazeera, Reuters, RFI, France 24* and in reports of aid and human rights organizations such as Human Rights Watch, International committee of the Red Cross, International Federation of Human Rights, MINUSMA, and locally based websites such as ActuNiger, Maliweb, Malijet.

10 https://apnews.com/article/mali-massacre-moura-un-wagner-killings-mercenaries-28cbc2d84809e626cd9b2aa30b0fa860; This attack was reported in international media and covered in (long) reports of human rights organizations.

11 Farabougou was one of the first sieges of a Malian town that was mediated in international media. Others would follow.

France (2021–2022), and the growing presence of the Wagner Group from late 2021. Together, these events provided a reference framework for analyzing how conflict and politics were discussed or omitted on Malian Twitter.

Based on these violent and political events we defined a list of predefined search terms: attaque, morts, massacres, Français, Poutine, Russe, Wagner, Ogossagou, Moura, Sobane Da, Farabougou, DIRPA *(Direction de l'information et des relations publiques des armées)*, FAMa *(Forces armées maliennes)*, armée malienne, Assimi Goïta.

To ensure comprehensive coverage, we employed a search strategy that accounts for different abbreviations and spelling variations of these terms as they appear on Twitter. This approach helps capture mentions despite inconsistencies typical in social media language, such as spelling errors, alternative transliterations, or shorthand.

## Findings: What Conflict is Mediated on Twitter?

### Topic modelling: Conflict related messages on Twitter

We ran several iterations of LDA topic modelling using different numbers of topics, for the whole dataset. After inspecting the resulting topic distributions, we found that a four-topic solution provided the most meaningful and interpretative structure for this dataset. The final topics retrieved are presented in Table 1. From each topic two hundred tweets were retreated to deepen the interpretation of content.

From the topic modelling, a clear division appeared of tweets on (1) politics (national and international), coverage of politics like ministerial events, international delegations in Bamako, (2) gender and social life, (3) reports and official communications of massacres, killings, and regional conflicts (4) football, social life, business, advertisement, religious events (see Table 1). Based on the LDA topic modeling results, topics 1 and 3 cover approximately 43% of the francophone Twitter messages and the rest is devoted to Islam, football, relationships, family, advertisement, health, and motivational speeches (topics 2 and 4).

| Topic | Words | Interpretation |
|---|---|---|
| Topic 1 | president, mali, afrique, ibk, dieu, paix, premier ministre, transition | Politics, presentation of official ceremonies, governmental issues, international (African) politics |
| Topic 2 | femme, force, merci, j'aime, homme, genre | Gender issues, social life, religion |
| Topic 3 | mort, politique, mal, militaire, situation, terroriste, attaque, history, victim | Reports on massacres, violence in north and center of Mali, killings of civilians and soldiers |
| Topic 4 | enfant, match, monde, mariage, finale | Football, social life, business, advertisement, religious events |

*Table 1: Results of topic modelling analysis (whole dataset, 4 topics)*

We analyzed the content of the topics by closely reading 200 tweets from each topic. The coverage of politics (topic 1) addressed the successes of the state, as well as the state's engagements in international relations. The results showed that messages on violence (topic 3) were communicated by the military (their account FAMa_DIRPA) who often celebrate these as victory, where MINUSMA messages focus on atrocities and human rights offenses. Reactions are often a celebration of the FAMa. Massacres in Moura and Bounty are also mentioned.

References to international, regional, and national politics get traction on Twitter. These include messages from news agencies like RFI and government communicators like state official accounts. Tweets on the opening of national institutions, delegations of ministers on visits to international allies like Vladimir Putin, nominations of ministers, and details and criticisms of the blockade by ECOWAS circulate. The examples of state visits aim to create a positive image of the post-coup Malian government, who present a new 'sovereignty' agenda. The second discussion point of the tweets is the local and regional violence and what the state presents as a 'battle against jihad' (topic 3). Tweets on the extermination of jihadists and successes by the army are met with support as people retweet the military communications. The topical analysis and the checking of tweets showed that they often feed into the amplification of state support.

Most users retweeted information accompanied by negative or critical statements towards Europe, the EU, France, the French ambassador and president Macron. Thereby they collectively co-created narratives that elevated some leaders and rejected others. Images of the large-scale gatherings against the measures of ECOWAS or for the ousting of the French were shared on Twitter, often to express users' solidarity and connect with physical networks. Jeffrey Juris refers to this process, wherein social media users influence the spread of information that guides people to gather in physical space, as the 'logic of aggregation' (Juris 2012: 266). The subjects' modes of speech and affects represented in the dataset reflect

this turbulence in Mali. Meanwhile, Twitter users barely responded to violent events, such as attacks on civilians.

## Frequency and Keyword Analysis: Dominant and Salient Conflict Discourses in Mali (2019–2022)

To examine Malian Twitter discourse between 2019 and 2022, we combine frequency analysis and keyword analysis, two methods that together offer a complementary perspective on both dominant and period-specific themes. Taken together, these approaches provide a comprehensive picture of the Malian Twittersphere.

Across all years examined, frequency analysis reveals a stable set of frequently used terms that reflect enduring themes in Malian Twitter discourse (Table 2), mainly shaped by reactions to the presence of France, geopolitics, and political transitions. Everyday topics such as kinship, football, love, religion, and work also appear regularly but are repeated each year and are therefore excluded from the conflict-focused analysis. The remaining high-frequency terms point to a discourse shaped by ongoing political instability, external involvement, and contested authority, which together form the context in which conflict-related narratives develop.

Keyword analysis, by contrast, reveals a different dimension of crisis, rooted in everyday insecurity, dissatisfaction with governance, and evolving political tensions. Rather than emphasizing what is most common overall, keyword analysis draws attention to what distinguishes one period from another, highlighting words and narratives that become unusually prominent at specific moments. In doing so, it captures emerging concerns and shifting discursive priorities that may remain marginal in frequency-based results but are crucial for understanding how Malian Twitter users respond to unfolding political and social conditions.

### 2019 – Regional politics and early unrest

Frequency analysis shows that Twitter discussions in 2019 are focused on regional geopolitics and France's presence in Mali, with frequently mentioned terms such as Mali, France, Bamako, Sahel, Afrique, G5, ministre, and sécurité. These reflect public attention to the role of foreign actors, government officials, and Sahel security issues, providing a picture of the macro-level discourse. In contrast, keyword analysis uncovers underlying social and governance concerns, including urban infrastructure (route, #malisecuroute, #motosecuroute), civic participation (ravec, inclusif), and local protests (#stopgreve, #emploimali). Keywords also highlight early mentions of violent events, such as the Ogossagou and Sobane massacres, though discussion of direct violence is marginal. Together, the two analyses show that while the macro discourse is geopolitical, underlying dissatisfaction and everyday insecurity are already emerging on Twitter.

### 2020 – Crisis, pandemic, and political transition

COVID-19 plays a prominent role in the 2020 Twitter discourse, with frequency analysis showing that dominant topics revolve around the pandemic alongside political change. Terms such as situation, transition, chef, peuple, force, covid19, and crise capture attention to both public health concerns and the military coup. This reflects the broader Twitter discourse following major events on the ground. Keyword analysis, however, emphasizes period-specific and emerging concerns: COVID-19 dominates through terms such as pandémie, confinement, masques, cnsp, and distribution, while political crises, including the kidnapping of opposition leader Soumeyla Cissé and the August coup, appear only marginally. Together, these analyses suggest that although exceptional political events structure the overall conversation, users' engagement is driven more strongly by the immediate and practical consequences of the pandemic, such as restrictions, resource distribution, and state management, than by episodic political shocks.

### 2021 – Diplomatic rupture and international engagement

In 2021, frequency analysis identifies a shift toward international relations and political transition, with high-frequency terms including France, Sahel, Paris, ministre, transition, and Russie. The appearance of Russie signals the early public perception of Mali's growing geopolitical alignment with Russia, alongside tensions with Western actors. Meanwhile, keyword analysis reveals specific themes within this broader discourse, including political restructuring (transition, assises, refondation), health debates (vaccin, vaccination, doses), press freedom concerns (#freeolivierdubois), and early references to international issues such as Ukraine and Russia. This shows that while the frequency analysis captures the dominant geopolitical frame, keywords reveal emerging topics, including ongoing domestic reforms and public attention to press and health issues.

### 2022 – Geopolitics, Russia, and regional tensions

By 2022, frequency analysis highlights geopolitical realignment, with terms such as Mali, France, Russie, Ukraine, Poutine, Wagner, Chine, Europe, sanction, and guerre. These terms show Twitter's focus on Russia, the Wagner Group, and broader international crises like the war in Ukraine, reflecting dominant discussion patterns. Keyword analysis adds further granularity, capturing emerging subthemes such as sanctions, ECOWAS actions (cedeao, embargo), and domestic political figures (Assimi, IBK), as well as continued attention to transition and governance debates. Direct discussion of violence remains limited, indicating persistent political sensitivity.

To summarize this section, we see that frequency analysis shows that Malian Twitter discourse between 2019 and 2022 is structured by a relatively stable set of dominant themes centered on geopolitics, political authority, and foreign intervention. Across all years, discussions repeatedly focus on France, international actors, political transitions, and state legitimacy, indicating that conflict is

primarily framed at the level of national and international politics rather than through direct accounts of violence. This macro-level focus provides the background against which political instability and shifting alliances are discussed and interpreted on Twitter. Keyword analysis, however, reveals a more fine-grained and dynamic picture of conflict. By highlighting terms that become unusually salient in specific periods, it captures how users respond to immediate disruptions and evolving conditions, including public health crises, economic insecurity, governance failures, sanctions, and diplomatic ruptures. Rather than emphasizing overt violence, keyword patterns point to conflict as it is experienced in everyday life—through restrictions, shortages, insecurity, and dissatisfaction with state responses. The relative absence of explicit references to repression or state violence, especially after the coups, further suggests increasing political sensitivity and possible constraints on public expression.

| **Year** | **Frequency Analysis – Dominant Topics & Key Terms** | **Keyword Analysis – Distinctive Themes & Key Terms** | **Political & Social Context** | **Interpretation** |
|---|---|---|---|---|
| 2019 | **Regional politics; France's presence** mali, france, bamako, sahel, afrique, g5, ministre, paix, sécurité | **Social dissatisfaction; infrastructure; national identity** ravec, route, inclusif, #malisecuroute, #motosecuroute, #stopaccident, #prioritépiétons, #monravec, #stopgreve, #emploimali, #ogossagou | Growing dissatisfaction with French military presence; protests; Ogossagou and Sobane massacres | Frequency captures macro-level geopolitics and already shows unease about France's role in Mali, public debate anticipates later mass protests, even though large-scale street mobilization had not yet occurred. Keywords reveal Twitter reflects an urban (Bamako-centered) climate of frustration, focused on everyday insecurity and economic decline. Violence is present but marginal. |

| Year | Frequency Analysis – Dominant Topics & Key Terms | Keyword Analysis – Distinctive Themes & Key Terms | Political & Social Context | Interpretation |
|---|---|---|---|---|
| 2020 | **Crisis; political change; COVID-19** situation, transition, chef, peuple, force, covid19, coronavirus, crise | **Public health; pandemic management** covid19, pandémie, confinement, virus, masques, guéris, cnsp, mesures, barrières, distribution | COVID-19 pandemic; military coup; kidnapping of opposition leader | Twitter discourse closely follows events on the ground: pandemic framed as crisis, coup framed as acting "for the people," and a clear rhetorical break with France; keywords highlight that the pandemic overshadows political crisis in online debate; protests and the coup play only a minor role on Twitter. |
| 2021 | **Diplomatic rupture; international tensions** france, sahel, paris, ministre, transition, russie | **Political transition; reform; international engagement** transition, assises, refondation, ibk, vaccin, vaccination, doses, ukraine, russie, poutine, #freeolivierdubois | Second coup; tensions with France; winding down of Barkhane; press freedom concerns | Twitter reflects a turning point in foreign relations, with growing criticism of Western actors and the first visible shift toward Russia; keywords shows that Twitter discourse shifts toward political restructuring and international engagement, while health issues and press freedom remain visible. |
| 2022 | **Geopolitics; realignment toward Russia** mali, france, russie, ukraine, poutine, wagner, chine, europe, sanction, guerre, transition | **Geopolitics; regional tensions; pan-African sentiment** ukraine, russie, poutine, sanctions, otan, transition, assimi, ibk, cedeao, embargo, france, russe(s) | War in Ukraine; ECOWAS sanctions; French withdrawal; Wagner presence; Mali-Russia ties | Frequency analysis reveals that Twitter discussions have become strongly geopoliticized, Russia moves to the center of debate; keywords show that Twitter becomes a space for geopolitical positioning, linking Mali's domestic transition to global power struggles. Direct violence is largely absent. |

*Table 2: Frequency and Keyword Analysis of Malian Twitter (2019–2022)*

## Guided lexical frequency analysis: Reading massacres between the lines

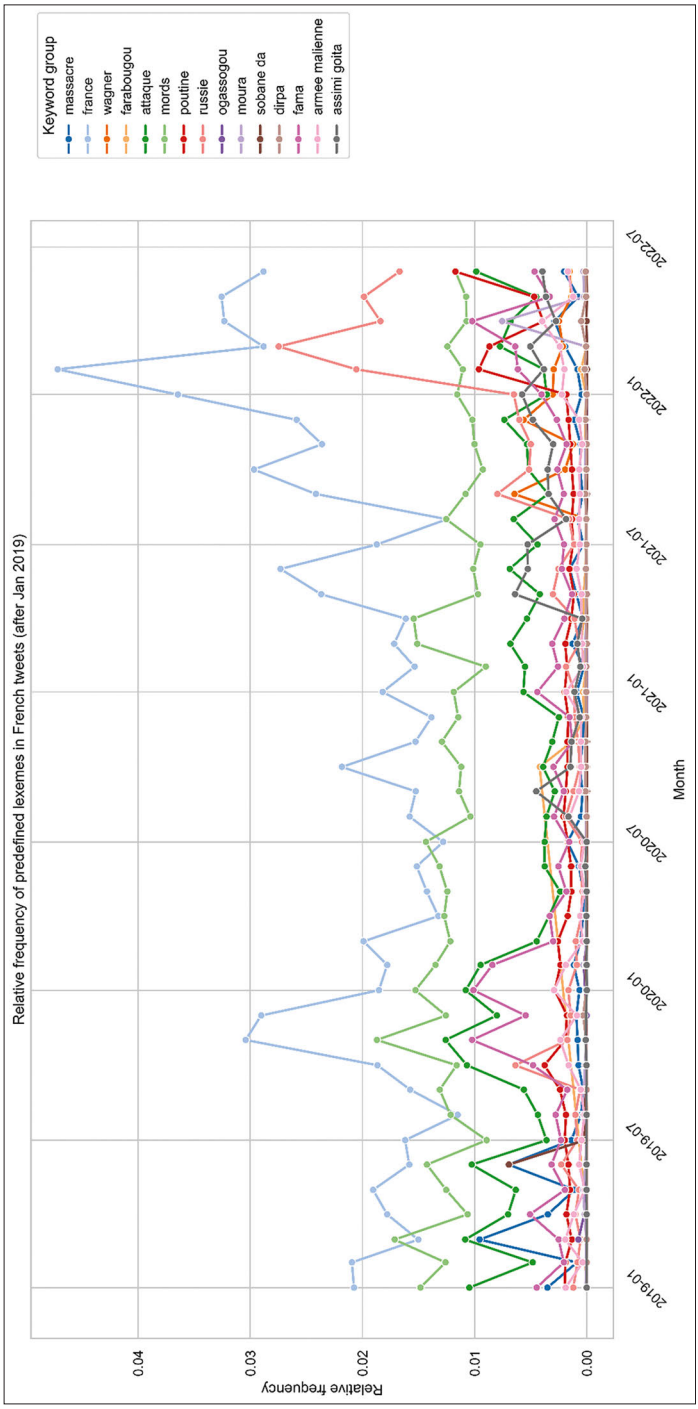


*Figure 2: Relative frequency of selected violence-related terms in tweets*

To specifically examine political and violence-related reporting on Twitter, we searched for terms associated with major political and violent events between 2019 and 2022, as shown in Figure 2. *France* and *mords* are the most frequently mentioned among examined entities. The French and the deteriorating relationship with the government of Mali from 2019 to 2022 are central in the discussions on Twitter. Most tweets were rather critical of France. There is little support for their interventions especially after the Bounty massacre in January 2021. The lexical group *mords* refers to all words related to death. Here we do not only encounter reference to violence, but also to life and death of the ordinary men also in religious terms. We cannot relate this group exclusively to violence. This highlights how France remains a central focus in Malian Twitter discourse across all observed years. France often features in relation to colonial legacy, military intervention, and foreign policy. Discussions around loss of life, also related to violent acts, whether political or civilian, are also a recurring theme. The constant presence of the word *attaque* (attack) shows that the attacks of several kinds, are discussed on Twitter, at a low but constant rate. From 2022 onward, the entity *russie* begins to appear with increased frequency, reflecting Mali's shifting international alliances and the growing public interest in the political, militarily, or symbolical involvement of Russia as France's influence becomes more contested.

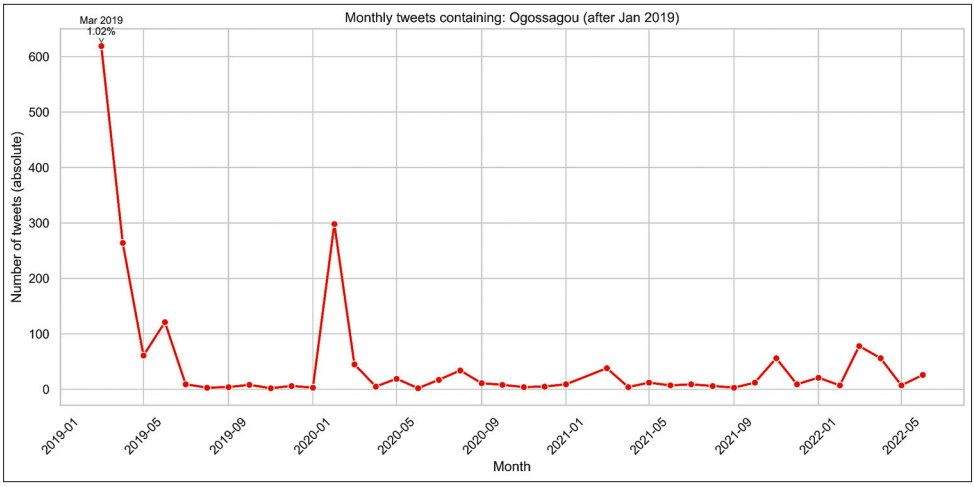


*Figure 3: Ogossagou tweets frequency*

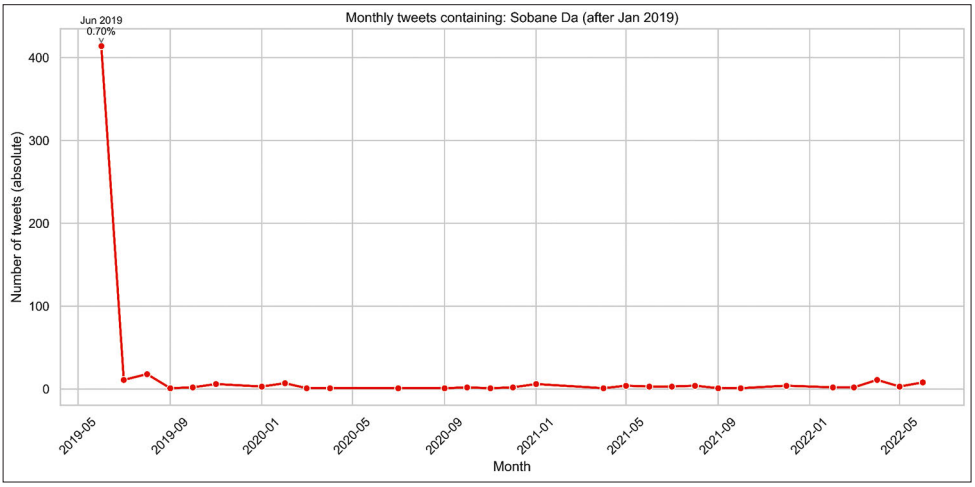


*Figure 4: Sobane Da tweets frequency*

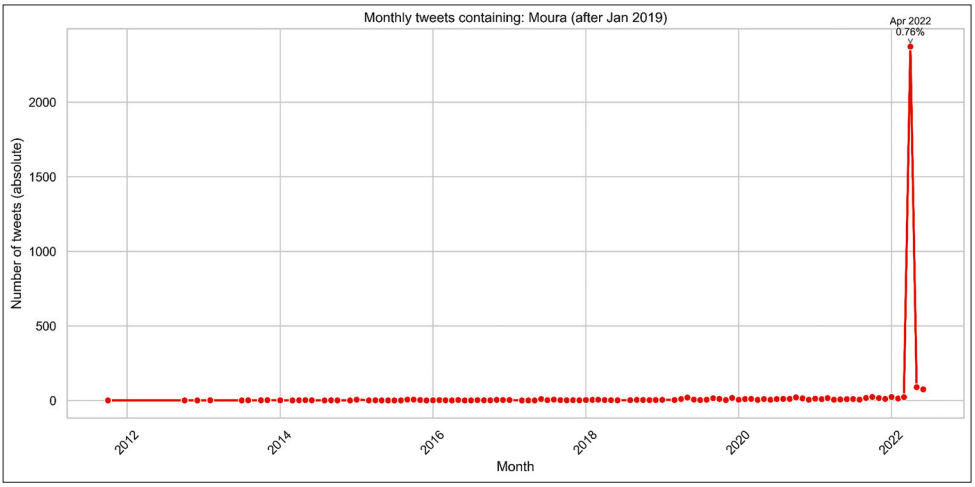


*Figure 5: Moura tweets frequency*

When it comes to massacres and violent incidents, such as Ogossagou (Figure 3) and Sobane Da (Figure 4), these events saw short-lived spikes in attention, with mentions rising directly after the incidents but quickly fading from the broader Twitter discourse. This pattern suggests an episodic focus, where public attention is briefly intense but lacks long-term engagement or sustained advocacy. The frequency of the lexeme Ogossagou is peaking at 619 tweets in March 2019, which represents approximately 1.02% of all tweets posted during that month. The example messages are repetitive: some are a call for attention to the Ogossagou massacre and others are news messages that post the number of casualties. A second, smaller peak occurs in February 2020, coinciding with another massacre; however, its frequency is even lower, at approximately 300. The frequency of the

lexeme Sobane Da shows a single, short-lived peak of 414 tweets in June 2019, coinciding with the massacre. This corresponds to a relative frequency of approximately 0.7% of all tweets posted during that month. After that, the mentions of this event are very scarce. The Moura massacre (Figure 5), one of the most high-profile and controversial events, generated more substantial discourse immediately after it occurred. For the Moura massacre the peak occurs in April 2022, also just after the massacre that happened at the end of March. It shows 3145 tweets, which corresponds to a 0,76% discussion rate. In the tweets we read a quite positive perspective on Moura. The messages frame the violence as a successful operation against terrorism, with the neutralization of terrorists, except for one tweet in which a person critiques that the army has been demonized (cf. Gouvy and de Bruijne 2022). However, due to data limitations beyond that period, it is unclear whether users continued to discuss Moura or the event faded similarly to previous incidents. This highlights a potential gap in longitudinal coverage of violent events in Malian Twitter debates, which may affect how memory and accountability are constructed in the digital public sphere.

## Discussion and Conclusion

Since 2009 social media have become part of the lifeworld of Malians. A lifeworld that has been, to a large extent, defined by the effects of political and violent events since 2012. We found that Twitter messages reflect this reality. We found that more than 40 percent of the analyzed French language tweets are about conflict and war. The other tweets are concerned with topics like football and religion. As anthropological studies have argued, social life continues also during war, which explains Twitter's two thirds of messages concerning other aspects of life. However, as we understand from the keyword analysis, the 'normal' life is affected by the conflict/war economy that makes life hard. Twitter users discuss the daily insecurities, lack of electricity, and youth unemployment. This may indicate that after all people live under the social conditions of war (Lubkemann 2008; Vigh 2008; Utas 2005).

Our findings show that Twitter is a battlefield of imaginaries of conflict. Ford and Hoskins (2022: 117-68) would refer to this as 'attention' in which the war is archived, defined, and imagined. People who participate in conflict-Twitter are no longer passive actors in conflict, but they shape it by their online behavior. Although many users rarely initiate debates or engage in discussions, they shape the content's visibility and interpretation through what they tweet, retweet, and amplify. As such attention itself becomes a form of involvement. Meanwhile, Twitter users who create messages focus on certain parts or layers of conflict. Hence, those who click, read, and retweet endorse these imaginations or representations of war. Tracing digital war on Twitter revealed 4 clusters of imaginaries: 1. National politics referring to the role of the French, the arrival of the

Russians, and the government's events and celebrations. 2. International politics that discuss ECOWAS sanctions, the role of France, Russia, the European Union and MINUSMA, reference to news agencies *RFI* and *France 24*, as well as a discussion of Ukraine. 3. The economic and security situation which affect the population. 4. The local violence that results in massacres, killings, the role of jihadist groups, framed as 'terrorists'. Imaginaries 1 and 2 are most prominent. The tweets on politics have a supportive tone for the actions of the government. They are anti-French and supportive of Russia. Imaginary 3 popped up especially in the frequency and keyword analysis. The crisis related to national politics, under IBK and later under Assimi Goïta, is a consequence of the political and economic situation of Mali that the population immediately feel in their daily life. Imaginary 4 occupies a small space in Twitter discussions. Twitter users hardly discuss the horrific atrocities of the conflict. We conclude that Twitter discursive practice generally has a positive attitude towards the military government and is supportive of its measures. Twitter does show popular reasons for protest, which addresses the economic situation in daily life and the 'hatred' of the French military interventions. However, Twitter users hardly discuss violence against civilians, which we as ethnographers considered as important events in the conflict. Hence these events do not enter the general Twitter discourse on conflict. Twitter creates an imagination of the war in which extremely violent events are avoided. As a result, Twitter informs the public on the heroic actions of the Malian army and legitimizes the government as a righteous actor in the conflict. Due to the selective framing and circulation of content that celebrates the violent state on Twitter, cultural violence and participatory warfare emerge. Users participate not through debating or addressing massacres against civilians, but by amplifying political and geopolitical narratives through tweeting and retweeting. They thereby normalize a pro-government imagination of war.

Malians read and participate in Twitter to find news about the situation in their country. They 'trust' Twitter. For many it is one of the only reliable media where they can find information about conflict, or about the political situation in the country. This comes close to Galtung's definition of cultural violence, information that legitimizes actions of the government and military, or information that feeds biased interpretations. Twitter helps them to legitimize the protests and the actions of the government. The silencing of massacres and violence also influences people's opinions as they do not 'see' the horrors of the conflict. Hence, Twitter operates as a medium through which digital cultural violence is produced and transmitted.

We base this analysis on a data set of approximately 10 million tweets, which is only a fraction of all tweets posted by users in Mali and the diaspora, yet this quantity is still far too large to read manually. The presented study of the Malian Twittersphere demonstrates that the combination of computational tools and ethnographic expertise enables a contextually informed, socio-politically grounded understanding of social media usage in conflict. Overall, the combined

method illustrates how big data and domain expertise can complement each other to analyze complex social phenomena, while acknowledging that neither approach alone is sufficient to fully understand the role of social media platforms in the Malian conflict sphere. These findings also highlight the need for greater attention to how social media platforms shape conflict narratives, particularly in contexts where alternative sources of information are limited.

## Availability of Data and Materials

The analysis code and derived results supporting this study are available in a Zenodo repository at https://doi.org/10.5281/zenodo.19055399.

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