Automatic Identification and Classification of Literature on Twitter

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Since the early days of computing, technical innovations have prompted literary experiments. From Christopher Strachey's 1953 automatically generated love letters to poems written by ChatGTP, a history of digital literature would include all major advances in computing and Natural Language Processing. The development of hypertext technology, the World Wide Web and probability-based language models, to name a few, have all played a major role in the multifaceted history of digital literature. The combination of strict constraints and possibilities to transcend norms imposed by print media has provided a fertile ground for writers to innovate.

With the democratisation of informatics, especially the emergence of content publishing platforms in the late 1990s, digital literature has become increasingly accessible to laypersons. Since then, specialist knowledge is no longer a prerequisite to creatively engage with digital technologies. Although literary creation online still requires a degree of material and societal privilege, the advent of social media platforms has further lowered the barrier to entry and led to the emergence of countless literary voices online.

Twitter is one such corner of the internet which has been explored by professional and amateur writers alike. The character limit becomes a structural constraint akin to a modern-day versification while the affordances of hashtags, threads, tags, bots, community access and a massive mode of distribution can be harnessed for aesthetic and conceptual innovations. More than these new constraints and affordances, the specific context of a social media platform such as Twitter drastically alters the literary and publishing paradigms found in other contexts.

The study of "Twitterature" is still new and obstructed by a number of practical considerations, the most important of which might be the sheer difficulty to identify and collect literary tweets at a large scale. First, this research project aims at addressing this issue by developing a classifier able to identify literary Tweets in large-scale Twitter archives. Second, we investigate whether automated methods for classification can effectively be used to categorise literary Tweets. Third, we hope to gain insights into textual variations and features that distinguish the genres/classes from each other. Literature on Twitter can be divided in different binary classes (e.g., prose vs. verse, generative vs. non-generative, interactive vs. non-interactive). However, it can also be classified by literary genres and, in case of automated accounts (i.e., bots) according to procedurality (e.g., Markov chains, data mining, mash ups, templates, schedules etc.). This information can then be cross-referenced with existing literary studies and contribute to analyse the continuities and ruptures between Twitterature and other literary forms. In this paper, we will present the aims and stakes of the project, the technical challenges it presents, as well as preliminary results.

Literature on Twitter has received some attention in recent years. Most prominently, the TwitLit project (Project Twitter Literature) aims to address the gap in the scholarship concerning writing communities on social media. Noting the ephemerality of such data, they highlight the urgency of archiving and preservation campaigns. Moreover, they seek to contextualise literary Twitter data within writing communities and contemporary literature. However, the project relies on hashtags to identify literary tweets as well as tweets related to writing communities. This approach only allows for a subset of relevant tweets to be captured and studied. In addition, a few studies of specific phenomena, accounts and authors have been conducted: serialised literature on Twitter (Andersen 2017), Eduardo Navas's Twitter work *Minima Moralia Redux* (Taylor 2019), Alain Veinstein's published "Twitter novel" (Rossi 2017), a Tweeted rewriting of Francesco Petrarca's *Rerum vulgarium fragmenta* implemented within the Oregon Petrarch Open Book (OPOB) (Lollini and Rosenberg 2015), to name a few. However, with the exception of the TwitLit project, no large-scale study has attempted a more systematic investigation of the language, trends and relationships developed in Twitter's literary ecosystem.

In other contexts, Twitter data has been used extensively in text classification tasks, particularly in relation to (fake) news (see Barbieri et al. 2015, de Souza et al. 2020) and sentiment analysis (see Gosh et al. 2015, Da Silva et al. 2014, Sanders et. al 2021). Moreover, text classifiers have been applied to a range of literary analysis tasks such as the classification of written texts through rhythmic features (Balint et al. 2017) and the linguistic profiling of text genres (Mendhakar 2022). To the best of our knowledge, no attempt at classifying literary language on twitter based on stylistic and linguistic features has been made to date.

Methodologically, drawing from the aforementioned studies, we intend to use a supervised approach to classify Tweets. From a practical point of view, we will proceed in four steps: (1) we will collect a set of literary and non-literary tweets, taking care to cover all literary types we seek to classify; (2) we will manually label these tweets in order to build the training and evaluation corpus; (3) we will define different types of neural architectures in order to establish a baseline but also to study some mechanisms such as feature integration and attention; and (4) we will evaluate our different architectures and report the results in terms of accuracy.

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