Social Media Influence Analyzer

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Keywords—component, formatting, style, styling, insert (key words)

# Introduction

Upon the rise of the still ongoing digital revolution, many digital platforms had a series of success stories in transforming the way society members interacts with each other on the daily basis. People around the world are no longer limited by distance or time to be able to reach out for one another and participate in social activities or events. Because of this increase of socializing on multiple popular digital platforms, a big amount of digital data is exchanged and recorded about each activity a certain user performs on those digital platforms.

Such data has a great potential in revealing the strengths of influences between network users, just like in real life every action a user commit and how society members react to this action can serve as an object for analysis which helps in drawing a big but rather detailed picture of how users influence each other across many societies and fields.

The aim of this research is establishing a ground foundation for extracting information about user activities on social media and use such information to detect social influence between network users. Such foundation is desired to make up the core of a future technical solution that enables social media analyzers with little or no technical experience in data processing and visualization to perform social media analysis on regular periods with a continuous timeline.

To serve this purpose, we start by determining the common characteristics in available functionality between the most popular social media platforms, then produce a data model based on similarity between them. This data model is crucial to guarantee the reliability and flexibility of algorithms and technical systems that builds on top of this research; both reliability and flexibility are two sides of the same coin, as when basing the system data model on similarities between data provided by as many social media platforms as possible, we naturally widen the range of analysis potentials of any applying digital platform, making the solution more flexible and highly reliable and adaptable for social media analyzers.

After establishing an agreement on the data model to be used for collecting and storing crawled data from social media, we dive into the main core functionality of detecting social influence between network users. Multiple techniques of detecting such influences will be implemented to fit the different needs and purposes of the final application of analysis, regardless if the purposes are independent or can be tighten together in combinations. The desired result is a user influence graph where each node represents a participating user, while each edge between two given users representing the influence between these two users with respect to direction of influence and holding the strength and area of the influence whether it is in sport, politic, economy etc.

Following the previous effort, we evaluate the performance of the user graph model and go through test results from both dummy and real-life data using crawled data from a rising social media platform called “Reddit”. We will try to highlight the most interesting and useful features of the produced user graph and push its power of detecting influencers and their area of influence to the limit. The evaluation and test processes is a vital and necessary step to rely on the user graph model in any future analysis.

This is the brief story of this research in a nutshell, but first let’s go through some interesting attempts in revealing user influence from social media.

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*a**b* 

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* The subscript for the permeability of vacuum **0, and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o”.
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1. G. Eason, B. Noble, and I. N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” Phil. Trans. Roy. Soc. London, vol. A247, pp. 529–551, April 1955. *(references)*
2. J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.
3. I. S. Jacobs and C. P. Bean, “Fine particles, thin films and exchange anisotropy,” in Magnetism, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271–350.
4. K. Elissa, “Title of paper if known,” unpublished.
5. R. Nicole, “Title of paper with only first word capitalized,” J. Name Stand. Abbrev., in press.
6. Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Electron spectroscopy studies on magneto-optical media and plastic substrate interface,” IEEE Transl. J. Magn. Japan, vol. 2, pp. 740–741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].
7. M. Young, The Technical Writer’s Handbook. Mill Valley, CA: University Science, 1989.

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