Dynamics of Twitter Opinion During the US 2016 Presidential Election

Alexandre Bovet[1], Hernán A. Makse[2]

1) naXys, University of Namur, Rempart de la Vierge 8, 5000 Namur, Belgium.
ICTEAM, Université catholique de Louvain, Avenue George Lemaître 4, B-1348 Louvain-la-Neuve, Belgium
alexandre.bovet@unamur.be
2) Levich Institute and Physics Department, City College of New York, New York, New York 10031, USA

We investigate the opinion of Twitter users during the 2016 US elections using a large scale dataset of more than 70 millions tweets. We develop a method to infer the opinion of Twitter users regarding the candidates by using a combination of natural language processing of the tweet contents, machine learning classification and analysis of the hashtags co-occurrence network. We study the temporal social networks formed by the interactions among millions of Twitter users and infer the support of each user to the presidential candidates. The resulting Twitter opinion trend follows the New York Times National Polling Average, which represents an aggregate of hundreds of independent traditional polls, with remarkable accuracy.

Going beyond the daily opinion analysis and analyzing the level of activity, the repartition of the supporters between the strongly connected giant component and the rest of the network and the daily fluctuations in the number of users reveal a clear dichotomy between the behavior of supporters of each candidate. Although Clinton supporters are the majority in Twitter, Trump supporters are generally more active and more constant in their support, while Clinton supporters are less active and show their support only occasionally.

To understand the role of information diffusion on Twitter opinion dynamics, we reconstruct the social network of retweets containing URLs directing to news outlet websites. In particular, we compare websites known to diffuse fake news compared to traditional news outlets. While influencers of traditional news outlets are journalists and public figures, we find that a large number of influencers of fake news websites are unknown users. We find that an important number of misinformation is spread by unknown influencers. However, it represents a small fraction compared to the volume or retweets pointing to left leaning and politically centered traditional news sources.