Recommendation of content to mitigate the echo chamber effect

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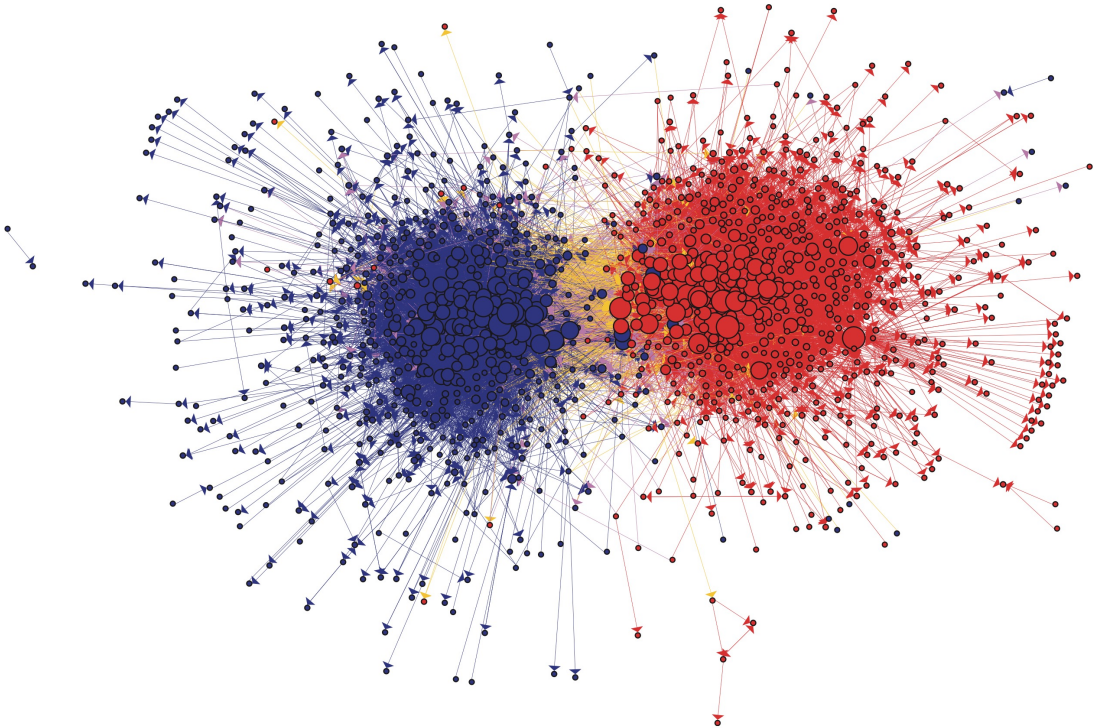
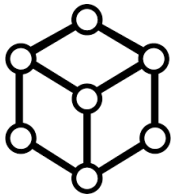
The echo chamber effect



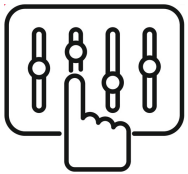
L. A. Adamic and N. Glance, ‘The political blogosphere and the 2004 U.S. election: divided they blog’, in Proceedings of the 3rd international workshop on Link discovery, in LinkKDD ’05. New York, NY, USA: Association for Computing Machinery, Aug. 2005, pp. 36–43. doi: 10.1145/1134271.1134277.

Objectives



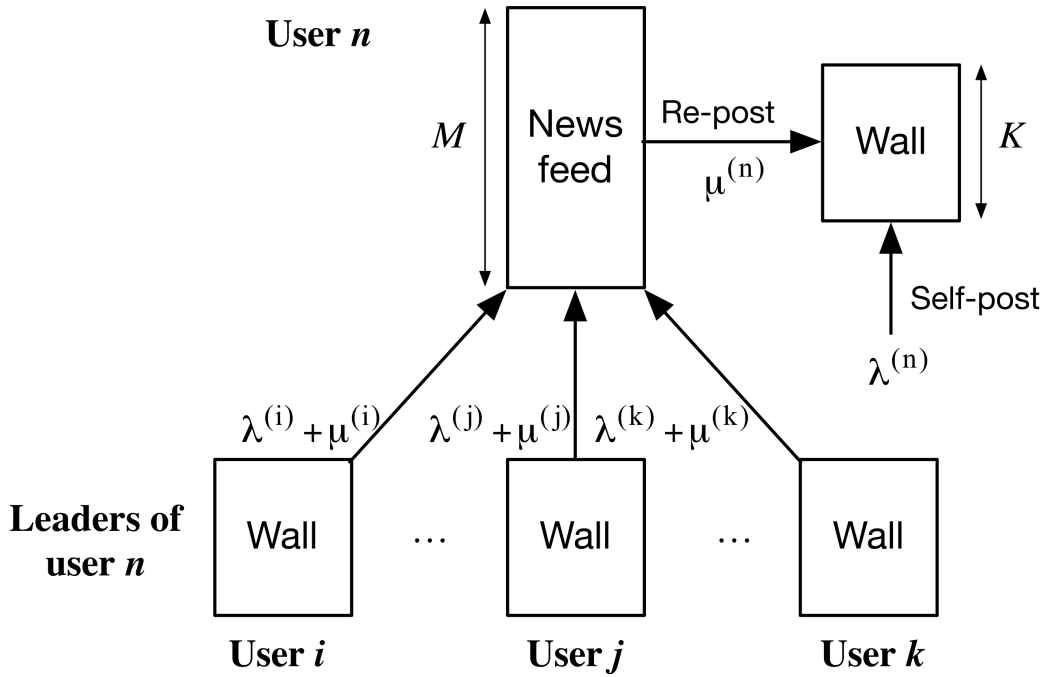
Model
echo chamber dynamics

Measure
the echo chamber effect



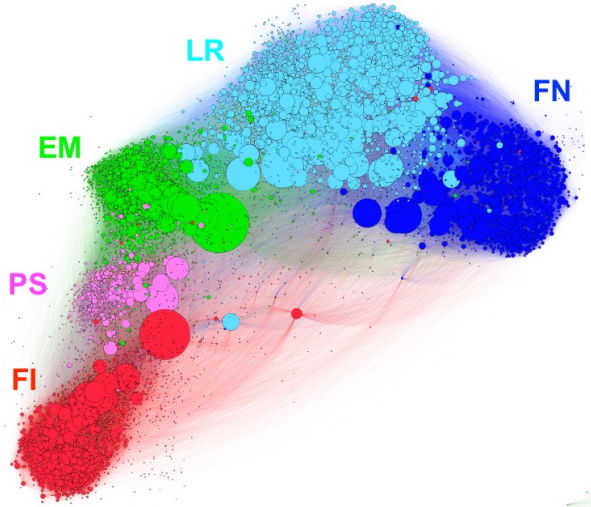
Control
the echo chamber effect

The Newsfeed Model

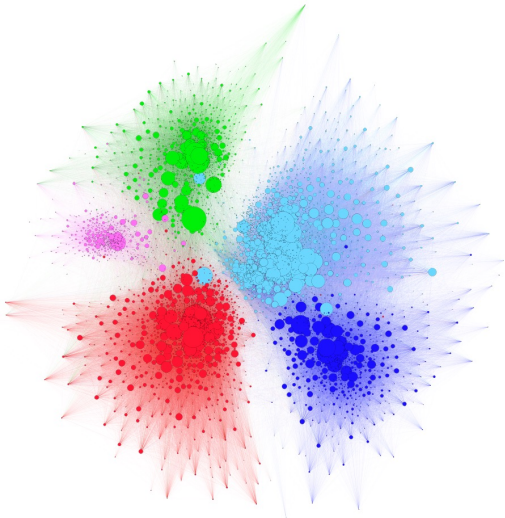


Giovanidis, B. Baynat, C. Magnien and A. Vendeville, "Ranking Online Social Users by Their Influence," in IEEE/ACM Transactions on Networking, vol. 29, no. 5, pp. 2198-2214, Oct. 2021. DOI: 10.1109/TNET.2021.3085201.

The Elysée2017 dataset



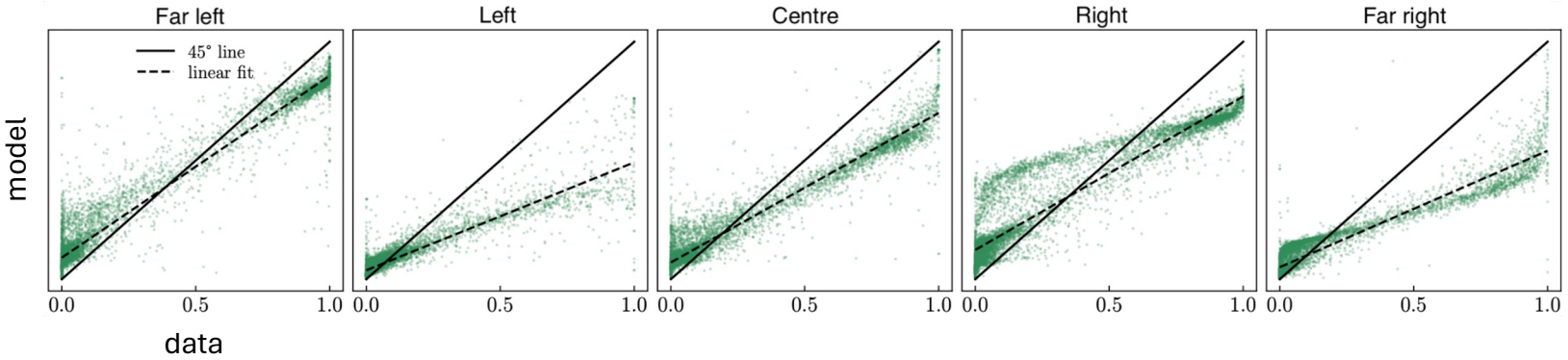
Follow network



Retweet network

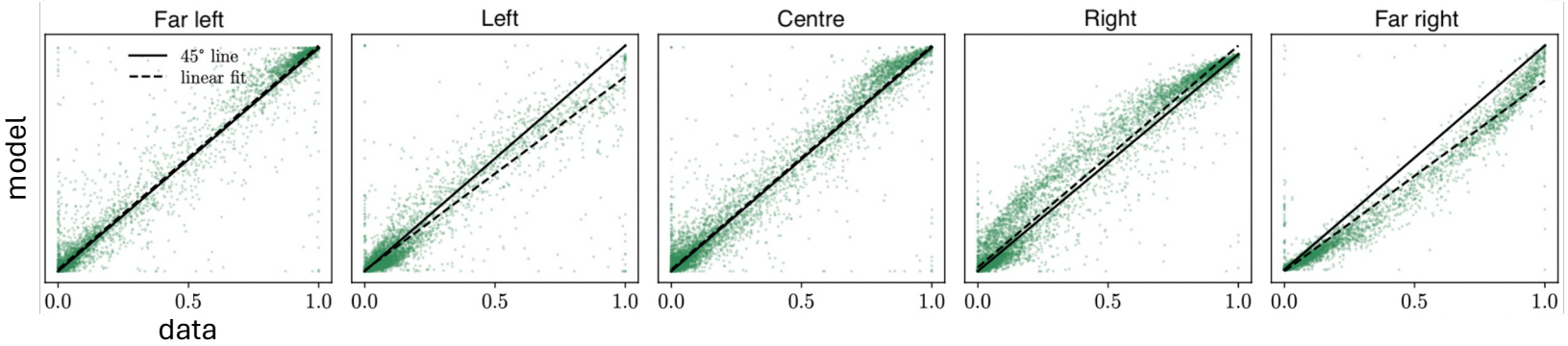
Fraisier, O., Cabanac, G., Pitarch, Y., Besançon, R., & Boughanem, M. (2018). #Élysée2017fr: The 2017 French Presidential Campaign on Twitter. Proceedings of the International AAAI Conference on Web and Social Media, 12(1). DOI 10.1609/icwsm.v12i1.14984

Empirical evaluation of the model



Distribution of opinions on newsfeeds.

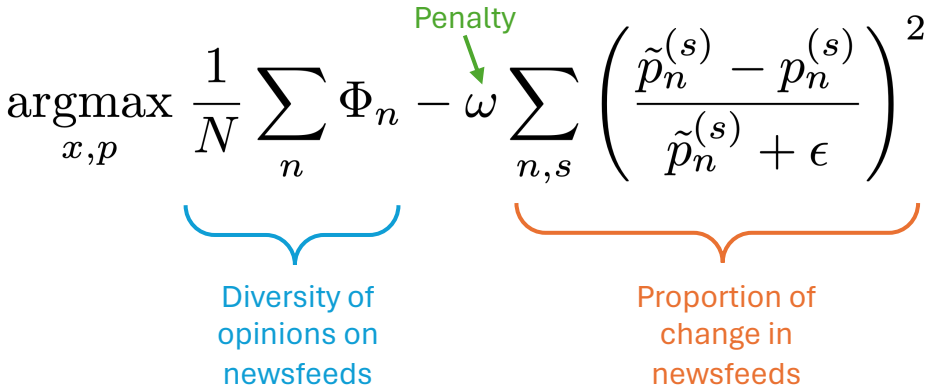
With reposting preferences



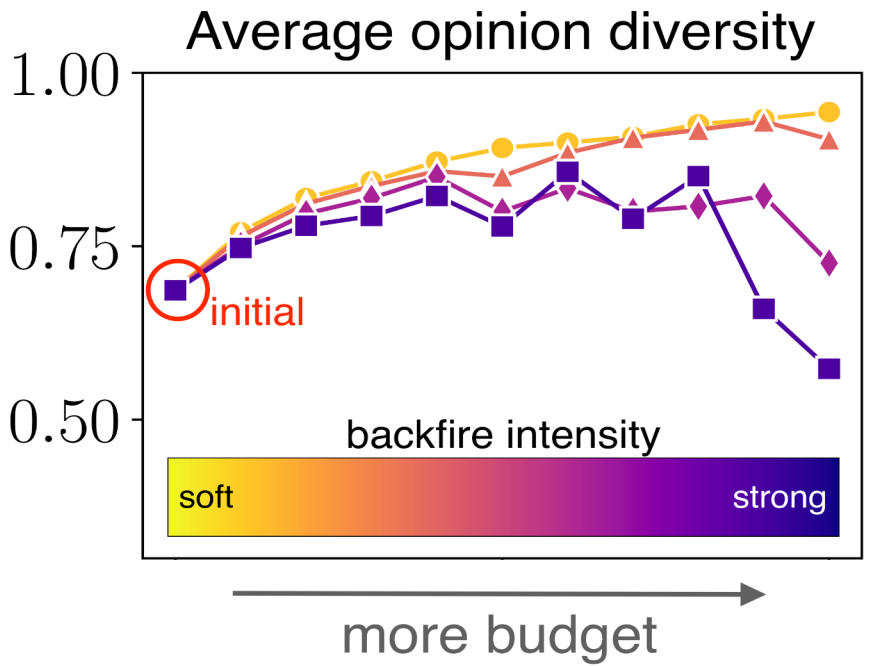
Users repost preferentially according to their views.

Controlling the echo chamber effect via recommend ations

- Budgeted: not too many recommendations!
- Avoid backfire effects!



Main results



And more...

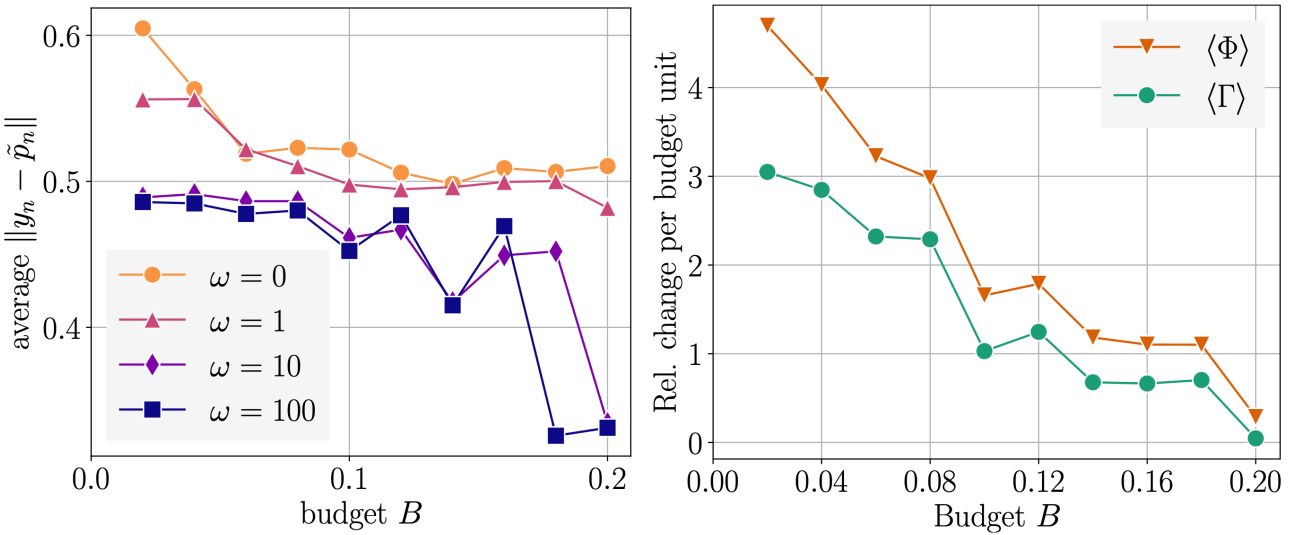


Figure 7.6: Left: average squared difference between recommendation vector and initial newsfeed distribution. **Right:** relative change in the metrics of interest per budget unit, for $\omega = 10$.