









investigate further their online behaviour. For future work, we plan to identify information cascade shapes (stars, complex structures, long paths, etc) and correlate such shapes with user roles. This analysis will help us to gain a better understanding into human interactions and influence in social media and provide valuable insights for information diffusion processes.

## 8. REFERENCES

- [1] S. Angeletou, M. Rowe, and H. Alani. Modelling and analysis of user behaviour in online communities. In *International Semantic Web Conference*, pages 35–50. Springer, 2011.
- [2] J. Chan, C. Hayes, and E. M. Daly. Decomposing discussion forums and boards using user roles. *International AAAI Conference on Web and Social Media*, 10:215–218, 2010.
- [3] J. Chan, C. Hayes, and E. M. Daly. Decomposing discussion forums and boards using user roles. *International AAAI Conference on Web and Social Media, (ICWSM)*, 10:215–218, 2010.
- [4] R. Edgar, P. F. Alexandre, P. Caladoa, and H. Sofia-Pinto. User profiling on twitter. *Semantic Web Journal*, 2011.
- [5] M. Farajtabar, M. Gomez-Rodriguez, Y. Wang, S. Li, H. Zha, and L. Song. Co-evolutionary dynamics of information diffusion and network structure. In *Proceedings of the 24th International Conference on World Wide Web, WWW '15 Companion*, pages 619–620, 2015.
- [6] M. Goetz, J. Leskovec, M. McGlohon, and C. Faloutsos. Modeling blog dynamics. In *International AAAI Conference on Web and Social Media (ICWSM)*, 2009.
- [7] M. Gomez Rodriguez, J. Leskovec, and A. Krause. Inferring networks of diffusion and influence. In *Proceedings of the 16th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD '10*, pages 1019–1028, 2010.
- [8] M. Granovetter. Threshold models of collective behavior. *American journal of sociology*, 83(6):1420, 1978.
- [9] A. Guille, H. Hacid, C. Favre, and D. A. Zighed. Information diffusion in online social networks: a survey. *SIGMOD Record*, 42:17–28, 2013.
- [10] H. W. Hethcote. The mathematics of infectious diseases. *SIAM review*, 42(4):599–653, 2000.
- [11] C. Hui, Y. Tyschchuk, W. A. Wallace, M. Magdon-Ismail, and M. Goldberg. Information cascades in social media in response to a crisis: A preliminary model and a case study. In *Proceedings of the 21st International Conference Companion on World Wide Web, WWW '12 Companion*, pages 653–656, 2012.
- [12] A. Java, X. Song, T. Finin, and B. Tseng. Why we twitter: understanding microblogging usage and communities. In *Proceedings of the 9th WebKDD and 1st SNA-KDD 2007 workshop on Web mining and social network analysis*, pages 56–65, 2007.
- [13] K. Y. Kamath, J. Caverlee, K. Lee, and Z. Cheng. Spatio-temporal dynamics of online memes: A study of geo-tagged tweets. In *Proceedings of the 22Nd International Conference on World Wide Web, WWW '13*, pages 667–678, 2013.
- [14] H. Kwak, C. Lee, H. Park, and S. Moon. What is twitter, a social network or a news media? In *Proceedings of the 19th international conference on World wide web*, pages 591–600, 2010.
- [15] J. Leskovec, L. A. Adamic, and B. A. Huberman. The dynamics of viral marketing. *ACM Trans. Web*, 1(1), 2007.
- [16] J. Leskovec, M. McGlohon, C. Faloutsos, N. S. Glance, and M. Hurst. Patterns of cascading behavior in large blog graphs. In *Proceedings of the 2007 SIAM international conference on data mining*, volume 7, pages 551–556, 2007.
- [17] C.-T. Li, Y.-J. Lin, and M.-Y. Yeh. The roles of network communities in social information diffusion. In *2015 IEEE International Conference on Big Data*, pages 391–400, 2015.
- [18] S. A. Myers and J. Leskovec. The bursty dynamics of the twitter information network. In *Proceedings of the 23rd International Conference on World Wide Web, WWW '14*, pages 913–924, 2014.
- [19] M. E. Newman. The structure and function of complex networks. *SIAM review*, 45(2):167–256, 2003.
- [20] P. J. Rousseeuw. Silhouettes: a graphical aid to the interpretation and validation of cluster analysis. *Journal of computational and applied mathematics*, 20:53–65, 1987.
- [21] M. Rowe, M. Fernandez, S. Angeletou, and H. Alani. Community analysis through semantic rules and role composition derivation. *Web Semantics: Science, Services and Agents on the World Wide Web*, 18(1):31–47, 2013.
- [22] I. Taxidou and P. M. Fischer. Online analysis of information diffusion in twitter. In *Proceedings of the 21st International Conference Companion on World Wide Web, WWW '14 Companion*, 2014.
- [23] R. Tinati, L. Carr, W. Hall, and J. Bentwood. Identifying communicator roles in twitter. In *Proceedings of the 21st International Conference Companion on World Wide Web, WWW '12 Companion*, pages 1161–1168, 2012.
- [24] Y. Yang, J. Tang, C. W.-k. Leung, Y. Sun, Q. Chen, J. Li, and Q. Yang. Rain: Social role-aware information diffusion. In *Association for the Advancement of Artificial Intelligence (AAAI)*, pages 367–373, 2015.
- [25] Z. Zhou, R. Bandari, J. Kong, H. Qian, and V. Roychowdhury. Information resonance on twitter: Watching iran. In *Proceedings of the First Workshop on Social Media Analytics, SOMA '10*, pages 123–131, 2010.
- [26] B. Zong, Y. Wu, A. K. Singh, and X. Yan. Inferring the underlying structure of information cascades. In *2012 IEEE 12th International Conference on Data Mining*, pages 1218–1223, 2012.