

Agent Oriented Models of the Media Landscape (Several MSc students can work on different sub-topics)

Supervisor: Dr John (Al) Alphonsus Matthews

Co-supervisor: Dr Kuldar Taveter

Agent Oriented Modelling (AOM) approaches are being used to model how information within the media landscape is communicated in society. For example, we can consider the likes of “Echo Chambers” and “Filter Bubbles” [1,2,3,4]. Modelling the media landscape is achieved by analysing the various actors and interactions that define it. In these modelling scenarios, the likes of journalists and consumers are considered as agents or actors. Further, their various interactions include the transfer of information between one another.

This master’s thesis will work with the EU H2020 [MediaDelCom](#) project, which is studying media related risks and opportunities for “deliberative communication” within the European media landscape. To model the media scenarios, we will work primarily with the NetLogo software programme [5,6]. We will discuss what we would like to simulate, including some clearly defined research questions. The goal is to design a system of agents and relationships, defined with environmental parameters to simulate different media and information transfer scenarios. This will include defining a probabilistic network of connections between various agents, including how people will align into different groups [7].

References

- [1] Geschke, Daniel, Jan Lorenz, and Peter Holtz. "The triple-filter bubble: Using agent-based modelling to test a meta-theoretical framework for the emergence of filter bubbles and echo chambers." *British Journal of Social Psychology* 58, no. 1 (2019): 129-149.
- [2] Sulis, Emilio, and Marcella Tambuscio. "Simulation of misinformation spreading processes in social networks: an application with netlogo." In *2020 IEEE 7th International Conference on Data Science and Advanced Analytics (DSAA)*, pp. 614-618. IEEE, 2020.
- [3] Tambuscio, M., Ruffo, G., Flammini, A. and Menczer, F., 2015, May. Fact-checking effect on viral hoaxes: A model of misinformation spread in social networks. In *Proceedings of the 24th international conference on World Wide Web* (pp. 977-982).
- [4] Tambuscio, Marcella, and Giancarlo Ruffo. "Fact-checking strategies to limit urban legends spreading in a segregated society." *Applied Network Science* 4, no. 1 (2019): 1-19.
- [5] Sterling, Leon, and Kuldar Taveter. *The art of agent-oriented modeling*. MIT press, 2009.
- [6] Sulis, Emilio, and Kuldar Taveter. "Agent-Based Business Process Simulation."
- [7] Tambuscio, Marcella, Diego FM Oliveira, Giovanni Luca Ciampaglia, and Giancarlo Ruffo. "Network segregation in a model of misinformation and fact-checking." *Journal of Computational Social Science* 1, no. 2 (2018): 261-275.