SOE 3: Machine Learning

Time: Monday 12:15–12:45 Location: MA 001

SOE 3.1 Mon 12:15 MA 001

Mapping news sharing on Twitter: A bottom-up approach based on network embeddings — •Felix Gaisbauer[1], Armin Pournaki[2,3], and Jakob Ohme[1] — [1]Weizenbaum-Institut für die vernetzte Gesellschaft e.V. — [2]Max-Planck-Institut für Mathematik in den Naturwissenschaften — [3]medialab, Sciences Po

News sharing on digital platforms is a crucial activity that determines the digital spaces millions of users navigate. Yet, we know little about general patterns of news sharing. We utilize a combination of three data sources - which we combine via network embedding methods and automated text analysis - to elucidate the extent to which sharing patterns of certain political user groups consist of specific outlets/topics/articles or have unknown diversity.

We collected all tweets which contained a link to one of 26 legacy or alternative news outlets for March 2023 (2.5M tweets). The full texts of the articles were crawled if available (30K texts); articles were assigned topics with a paragraph-based BERTopic model. The follower network of German MPs was also collected. This was used to embed followers and MPs in a latent political space using correspondence analysis.

This allows to investigate which types of articles are shared in which political region(s) of the latent space. To explore this systematically, we apply measures of collective sharing breadth and depth in the embeddings with respect to specific outlets, topics or single news events. All in all, this enables a previously unexplored bottom-up view on news sharing on Twitter.

SOE 3.2 Mon 12:30 MA 001

Enhancing Chronic Disease Management through machine learning-based analysis of population Data — •Anna Nitschke[1], Carlos Brandl[1], Jannis Demel[1], Jonathan Berthold[1], Carola Behr[1], Till Bärnighausen[2], and Matthias Weidemüller[1] — [1]Physikalisches Institut, Heidelberg University, Germany — [2]Heidelberg Institute of Global Health (HIGH), Heidelberg University, Germany

To achieve decisive progress in diagnosis and treatment of non-infectious chronic diseases, focusing on significant conditions like diabetes, we employ machine learning techniques on publicly available census data. Together with the Heidelberg Institute for Global Health, our aim is to make precise and reliable predictions about which people in which region are likely to be affected by these diseases. Using machine learning allows us to analyse individual needs and healthcare requirements. We exemplify this for India on a publicly available census dataset and will present how those predictions can help us to extract valuable insights from social and medical perspectives. Additionally they enable early identification of high-risk groups and regions, as well as improved utilisation of scarce healthcare resources.