

Is There an Order in Evil?

Artificial Intelligence, Complex Networks and Terrorism

Gian Maria Campedelli

School of Political and Social Sciences – Transcrime (Università Cattolica del Sacro Cuore)
Via San Vittore 43, 20123 Milan (Italy)

The diffusion of open access data and the advances in quantitative approaches for addressing social science problems have spread also in the study of criminal phenomena. Data and models have empirically demonstrated what many theoretical frameworks were already positing about crime, violence and human behaviour: crimes are patterned and exhibit regular trends [1]–[3]. This also applies to terrorism [4]–[6]. Terrorism clusters in time and space and follows precise schemes, as propagation and diffusion [7], [8]. If thus schemes exist, algorithms can be trained to learn patterns and enhance the knowledge we lack on terror dynamics. Relying on the concepts of time dependence and strategic memory-like processes, my research aims at exploiting the strengths of artificial intelligence in investigating jihadist dynamics. Specifically, I propose a framework that integrates complex networks with deep learning to investigate the memory dynamics across events and forecast targets attacked by five of the world’s most active jihadist organizations: the *Islamic State*, the *Taliban*, *Al Qaeda*, *Boko Haram* and *Al Shabaab*. Exploiting data on all the events plotted by these actors, graph-derived multivariate time series that map the over-time centrality of hit countries, employed weapons, tactics and selected targets are used to feed Long Short-Term Memory networks [9]. Forecasts and further analyses show how deep learning is promising in event-feature prediction and – at a general level – specific patterns exist and can be meaningfully learned. This work opens the path for future research and policy-implications oriented to intelligence practices and solutions to mitigate or anticipate the threat of terrorist attacks.

References

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