

Complexity DTC & Warwick Business School



MiniProject Outline: Shock & Surprise in Online Social Networks

Overview

This project builds on work being undertaken as part of an EPSRC project with Professor Sandra Chapman (Physics), Professor Ed Bullmore (Medicine, Cambridge), and myself (Warwick Business School) (see <http://gow.epsrc.ac.uk/ViewGrant.aspx?GrantRef=EP/H02395X/1>).

Research Objectives

We will use the Twitter Applications Programming Interface ('API') <http://apiwiki.twitter.com/> in order to investigate how shocks propagate through the Twitter social network. This is part of the above project investigating how shocks propagate through neurological systems and financial systems. Are the mechanisms for shock propagation in social networks similar to those in neurological or financial systems? Do social system shocks behave as natural science models would suggest? Can we parameterize the propagation of shocks? Is it the same for positive news and negative news?

Background

Knowledge of social network literature (see the journal *Social Networks*).

Data Sources

We will use the Twitter API to download the social graph of connections between actors; we can also then use trending topics (such as #swineflu for example) to see exactly how this propagates around the network.

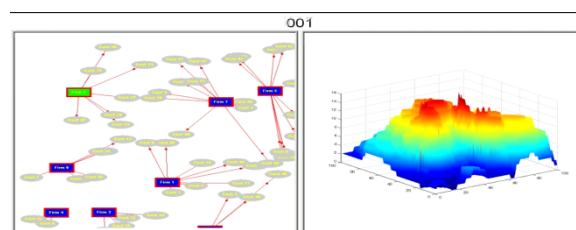
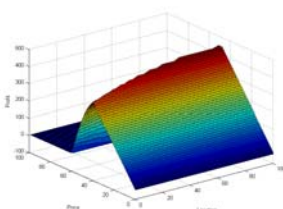
Recommended Techniques to be used

Knowledge of, or ability to learn:

- Database management (mySQL)
- Some basic programming language e.g. Java, C#, Perl, PHP (preferably PHP for web-based data acquisition)
- Social Network Analysis tools (e.g. Pajek) (optional)

Prospective Deliverables & PhD Prospects

It is hoped that this project be the basis of a PhD to be linked to the strategic management group of Warwick Business School under my supervision. The work of the project may be a central part of the thesis, but alternatives can be discussed during the project. It is hoped that the student will become involved with post-doctoral researchers in the project from medicine, physics, and business.



Presentations from Prior Work

