GOING VIRAL: THE DYNAMICS OF BELIEF DIFFUSION

PROJECT DESCRIPTION

There are many mathematical models (e.g. the S.I.R. model based on Susceptible, Infected, and Recovered categories) for the spread of disease viruses within a human population. Some of these have also been used to model the spread of ideas and beliefs. However, there are several factors that make the diffusion of beliefs fundamentally different from that of disease viruses. The most important of these is the fact that ideas can spread within digital social networks (while human viruses can spread only through some kind of physical contact between an infected person and a susceptible one). A related factor is that there might be a tipping-point at which a belief suddenly achieves complete acceptance within the set of near-neighbors of a specific member of a susceptible population when the proportion of those near-neighbors holding the belief exceeds a critical threshold c (i.e. in the language of graph theory, when the proportion of nodes holding the belief and within a given distance d from a specific node exceeds some value c). Other factors, such as the strength with which an agent holds a belief, may be significant for the diffusion of beliefs without having comparable analogues in the diffusion of diseases.

This project will consist of searching the research literature for articles relevant to this topic, classifying those articles according to various criteria, formulating new mathematical/computational models for belief diffusion, and testing the plausibility of those models by comparing their predictions with data found in the research literature.

FACULTY-DEPARTMENT

Augustana-Science

DESIRED FIELD OF (STUDENT) STUDY

Mathematics, Computer Science

INTERNSHIP LOCATION

Augustana Campus (Camrose, Alberta)

NUMBER OF INTERNSHIP POSITIONS

1

INTERNSHIP START DATE

4 June 2018

INTERNSHIP END DATE

31 August 2018

ARE THE DATES FLEXIBLE?

Yes. After receiving an offer for the internship, selected students will have the opportunity to contact the supervising professor to request a date change.