



## Collective Contagion

ECCS'13 Satellite Workshop

### Computational Social Science: from Social Contagion to Collective Behaviour

19 September 2013, Barcelona

# Book of Abstracts

#### Organising Committee

- Javier Borge-Holthoefer (BIFI, University of Zaragoza, Spain)
- Guido Caldarelli (IMT Lucca, Italy)
- Rosaria Conte (ISTC CNR, Italy)
- Sandra González-Bailón (Annenberg School for Communication, University of Pennsylvania; Oxford Internet Institute, University of Oxford)
- Márton Karsai (Northeastern University, USA; Aalto University, Finland)
- Helen Margetts (Oxford Internet Institute, University of Oxford, UK)
- Walter Quattrociocchi (Northeastern University, USA)
- Luca Rossi (Northeastern University, USA)
- Alessandro Vespignani (Northeastern University, USA; ISI Foundation, Italy)
- Taha Yasseri (Oxford Internet Institute, University of Oxford, UK)



## **Quantifying the Impact of Cohesiveness in Financial News**

*Matija Piškorec, Nino Antulov-Fantulin, Tomislav Šmuc, Igor Mozetič, Petra Kralj Novak, Miha Grčar and Irena Vodenska*

In this paper, we introduce a News Cohesive Index (NCI) - a systemic measure of a bipartite network of documents and financial entities. Our hypothesis is that large cohesion in a collection of documents indicates a form of herding effect that takes place in the financial news, and that this effect either reflects on important event in the financial markets or can potentially elicit a response on financial market behavior. Our measure of cohesion is invariant to the bipartite projection to document or entities and it can be efficiently computed through largest  $k$  singular values of adjacency matrix of a bipartite graph. We compare our index with various financial indices such as VIX index that measures implied volatility of S&P500 companies CDS composite index comprised of credit default swaps of selected financial institutions. Our goal is to investigate the usefulness of the NCI Index as a proxy for systemic risk in financial markets.