

UNIVERSITY OF SOUTH FLORIDA

Defense of a Master's Thesis

Measuring Influence Across Social Media Platforms: Empirical Analysis Using Symbolic Transfer Entropy

by

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For the MSCS degree in Computer Science and Engineering

Social media platforms are interconnected environments that influence each other. Information from one social media platform spreads to another. This thesis proposes a platform-independent framework to analyze information transfer across social media platforms. This thesis uses Symbolic Transfer Entropy and Statistical Significance Test to measure influence and optimize the time window of influence between different platforms. To validate the framework, the thesis analyses the temporal activity dynamics and the information transfer across three different platforms, Reddit, Twitter and GitHub. Two data driven studies are described in this thesis. The first study finds the optimum time windows of influence between the three platforms during two different cyber attack events on cryptocurrency exchanges. It finds that specific types of activities are more influential than others, and optimum time interval changes with pre, during, and post event days. The second study applies information revealed in the first study and specifically the optimal time window to link cross-platform information cascades from Twitter and Reddit. The case-study is a heuristic that, we show, can reduce the search space for connecting information cascades across different platforms.

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