The Relationship Between Misinformation And Social Noise And Their Impact On The Information Ecosystem

Manar Alsaid[a]

[a] Teaching Fellow, Department of Information Science, University of North Texas, United States

Manaralsaid@my.unt.edu

Manar.Alsaid@TAMUC.edu

ABSTRACT

Social noise and social entropy are new concepts modeled after Shannon's information and communication theory where the interference of noise between sender and receiver is measured using entropy. Social noise in the context of social media plays an important role in magnifying and spreading misinformation which is in return has an impact on the overall information ecosystem. Ecosystems are made of interconnected and integrated parts that rely on one another to maintain balance and survive. Studies related to social noise and misinformation have shown that social noise can contribute significantly to spreading misinformation and has the potential to alter the original intended message (Alsaid & Pampapura, (2022); Alsaid et al., (2024)). In this paper, we investigate methods of quantifying social noise using entropy as a way to minimize the spread of misinformation on social media in particular Twitter (Now X). Using a combination of Uncertainty Reduction Theory (URT) and Social Entropy, data analysis were performed using one million tweets harvested from #Ukraine. Data analysis involved several methods including sentiment analyses, topic modeling, term association, network maps and entropy computation. Results from the study have shown a direct relationship between social noise and social entropy as a measure of uncertainty. The results show that social noise and uncertainty decrease with the use of URLs and rich content. It is also evident from the results that that entropy value is influenced by the accuracy of keyword identified using topic modeling as descriptive of social noise constructs. Using semantic analysis of tweets can help improve the definition of social noise constructs leading to enhanced and more accurate entropy calculation. Future studies may l consider advanced machine learning and AI.

ALISE RESEARCH TAXONOMY TOPICS

data curation; information management; information privacy; intellectual property.

AUTHOR KEYWORDS

Data Curation; Information Management; Information Privacy; Intellectual Property

DOI: https://doi.org/10.21900/j.alise.2024.1774