

September 27, 2020 to October 01, 2020 - Lisbon, Portugal

- <u>AICT 2020</u>, The Sixteenth Advanced International Conference on Telecommunications
- **ICIW 2020**, The Fifteenth International Conference on Internet and Web Applications and Services
- <u>ICIMP 2020</u>, The Fifteenth International Conference on Internet Monitoring and Protection
- <u>SMART 2020</u>, The Ninth International Conference on Smart Cities, Systems, Devices and Technologies
- <u>IMMM 2020</u>, The Tenth International Conference on Advances in Information Mining and Management
- **INFOCOMP 2020**, The Tenth International Conference on Advanced Communications and Computation
- MOBILITY 2020, The Tenth International Conference on Mobile Services, Resources, and Users
- <u>SPWID 2020</u>, The Sixth International Conference on Smart Portable, Wearable, Implantable and Disabilityoriented Devices and Systems
- <u>ACCSE 2020</u>, The Fifth International Conference on Advances in Computation, Communications and Services

## InfoSys 2020 Congress

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- ICNS 2020, The Sixteenth International Conference on Networking and Services
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- <u>ENERGY 2020</u>, The Tenth International Conference on Smart Grids, Green Communications and IT Energyaware Technologies
   <u>WEB 2020</u>, The Eighth
- International Conference on Building and Exploring Web Based Environments
- **DBKDA 2020**, The Twelfth International Conference on Advances in Databases, Knowledge, and Data Applications
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NexComm 2021 Congress April 18 - 22, 2021 - Porto, Portugal submission deadline: January 19, 2021

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## Countering an Anti-Natural Language Processing Mechanism in the Computer-Mediated Communication of "Trusted" Cyberspace Operations

## Authors:

Steve Chan

**Keywords:** Satire; Natural Language Processing; Deep Learning; Dimensionality Reduction; Bi-Normal Separation Feature Scaling; Modified Association Matrix.

## Abstract:

There are bypass mechanisms to Natural Language Processing capabilities, such as the usage of irony, sarcasm, and satire, particularly as pertains to Computer-Mediated Communications. The problem then is that of the gradations between irony, sarcasm, and satire. Irony is used to convey, usually, the opposite meaning of the actual things said, but its purpose is not necessarily intended to hurt the target. The purpose of sarcasm, unlike irony, is to hurt the target. Satire might utilize irony, exaggeration, ridicule, and/or humor to expose and criticize shortcomings and/or vices of the target. The detection of these usages is an intriguing challenge. For example, sarcasm detection is difficult as there are several gradations; sarcasm might be comprised of real sarcasm, semi-irony, or friendly sarcasm. Determining the cognitive context, which triggered the original manifestation remains a bridge to be solidified. Also, sarcasm detection often exceeds even the concept of context, as it can be distorted by either the sender and/or receiver. This remains a herculean challenge in the domain, as others remain focused on first-order metarepresentations (e.g., analogies), while the challenges of second-order metarepresentations are more sparsely addressed. This paper presents a possible framework to address the problem by utilizing Bi-Normal Separation Feature Scaling for informing a Modified Association Matrix as contrasted to a framework utilizing Inverse Document Frequency and a prototypical Association Matrix. It is posited that the former will exhibit faster convergence and accuracy for enhanced detection of irony, sarcasm, as well as satire, and preliminary results seem to indicate this. The main output of the paper is a potential solution stack that directly contends with the second-order metarepresentation issue.



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