Socio-Technical Mitigation Effort to Combat Cyber Propaganda: A Systematic Literature Mapping

By: Maseri, AN (Maseri, Aimi Nadrah)¹; Norman, AA (Norman, Azah Anjor)¹; Eke, CI (Eke, Christopher Ieany)¹,²; Ahmad, A (Ahmad, Atif)³; Molok, NNA (Molok, Nurul Nuha Abdul)⁴

IEEE ACCESS
Volume: 8 Pages: 92329-92344
DOI: 10.1109/ACCESS.2020.2994658
Published: 2020
Document Type: Article

Abstract
This systematic mapping literature aims to identify current research and directions for future studies in terms of combating cyber propaganda in the social media, which is used by both human effort and technological approaches (socio-technical) for mitigation. Out of 5176 retrieved articles, only 98 of them were selected for primary studies; classified based on research artifacts, mitigation effort, and the social media platforms involved in the research. The search was conducted using selected databases and applying selection criteria set for this research. Through the analysis, important research trends were identified based on human effort and technological approaches in mitigating and combating the cyber-propaganda issues. The authors also identified various mitigation socio-technical approaches such as identification, detection, image recognition, prediction, truth discovery, and comprehension of rumors flow. The study also highlights areas for further improvements, to complement the performances of existing techniques. Besides, the study provides a brief review of cyber propaganda detection using classification techniques. Hence, it has set forth applicable research focus on the areas dealing with the mitigation of risk borne by cyber propaganda in the social media.

Keywords
Author Keywords: Feature extraction; Systematics; Twitter; Object recognition; Information systems; Facebook; Systematic mapping review; social media; cyber propaganda; mitigation; human effort; socio-technical approaches
KeyWords Plus: FAKE NEWS, SOCIAL MEDIA, MISINFORMATION, COMMUNICATION, INFORMATION, TYPOLOGY, REMOVAL, SUBJECT, RUMORS

Author Information
Reprint Address: Universiti Malaya Univ Malaya; Fac Comp Sci & Informat Technol, Dept Informat Syst, Kuala Lumpur 50603, Malaysia.
Corresponding Address: Norman, AA (corresponding author)

Addresses:
[1] Univ Malaya, Fac Comp Sci & Informat Technol, Dept Informat Syst, Kuala Lumpur 50603, Malaysia
[2] Fed Univ, Fac Sci, Dept Comp Sci, Lafia 234830, Nigeria
[3] Univ Melbourne, Sch Comp & Informat Syst, Melbourne, Vic 3010, Australia
[4] Int Islamic Univ Malaysia, Fac Informat & Commun Technol, Dept Informat Syst, Gombak 53100, Selangor, Malaysia

E-mail Addresses: azahnorman@um.edu.my

Funding

| Funding Agency | Grant Number |
|----------------|--------------|
| University of Malaya Postgraduate Research Grant (PPP) | PG124-2015B |

Publisher
IEEE INST ELECTRICAL ELECTRONICS ENGINEERS INC, 445 HOES LANE, PISCATAWAY, NJ 08855-4141 USA
### Cited References: 135

Showing 30 of 135  

| # | Reference |
|---|-----------|
| 1. | Fake news identification on Twitter with hybrid CNN and RNN models  
By: Ajao, O.; Bhowmik, D.; Zargari, S.  
P: INT J C S O C MED SO  Pages: 226-230  Published: 2018 |
| 2. | Viral misinformation: The role of homophily and polarization  
By: Anagnostopoulou, A.; Besi, A.; Caldarelli, G.; et al.  
arXiv:1411.2893  Published: 2014  
URL: http://arxiv.org/abs/1411.2893 |
| 3. | Keeping Up with the Tweet-dashians: The Impact of ‘Official’ Accounts on Online Rumoring  
By: Andrews, Cynthia; Fichet, Elodie; Ding, Yuwei; et al.  
ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2016)  Pages: 652-656  Published: 2016 |
| 4. | Effacing the Dilemma of the Rumouring Subject: A Value-oriented Approach towards Studying Misinformation on Social Media  
By: Arica, Rajy  
JOURNAL OF HUMAN VALUES Volume: 24 Issue: 1 Special Issue: SI  Pages: 56-65  Published: JAN 2018 |
| 5. | How Information Snowballs: Exploring the Role of Exposure in Online Rumor Propagation  
By: Arif, Ahmer; Shanahan, Kelley; Chou, Fang-Ju; et al.  
ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2016)  Pages: 466-477  Published: 2016 |
| 6. | A Closer Look at the Self-Correcting Crowd: Examining Corrections in Online Rumors  
By: Arif, Ahmer; Robinson, John J.; Stanek, Stephanie A.; et al.  
CSCW'17: PROCEEDINGS OF THE 2017 ACM CONFERENCE ON COMPUTER-SUPPORTED COOPERATIVE WORK AND SOCIAL COMPUTING  Pages: 155-164  Published: 2017 |
| 7. | Social Media Analytics to Identify and Counter Islamist Extremism: Systematic Detection, Evaluation, and Challenging of Extremist Narratives Online  
By: Arpinar, I.; Budak, Kursuncu, Ugrur; Achilov, Dilshod  
2016 International Conference on Collaboration Technologies and Systems (CTS)  Pages: 611-612  Published: 2016 |
| 8. | Detecting Jihadist Messages on Twitter  
By: Ashcroft, Michael; Fisher, Ali; Kaali, Lisa; et al.  
2015 European Intelligence and Security Informatics Conference (EISIC)  Pages: 161-164  Published: 2015 |
| 9. | Identifying Fake News and Fake Users on Twitter  
By: Akin, Sezgin; Costel-Sergiu, Tanaselea, Alexandru; jTene, Adrian  
Knowledge-Based and Intelligent Information & Engineering Systems (KES-2016)  Book Series: Procedia Computer Science Volume: 126 Pages: 451-461  Published: 2018 |
| 10. | Islamophobia and Twitter: A Typology of Online Hate Against Muslims on Social Media  
By: Awan, Imran  
POLICY AND INTERNET Volume: 6 Issue: 2 Pages: 133-150  Published: JUN 2014 |
| 11. | Cyber-Extremism: Isis and the Power of Social Media  
By: Awan, Imran  
SOCIETY Volume: 54 Issue: 2 Pages: 138-149  Published: APR 2017 |