Special Issue on Misinformation on the Web

Aims and Scope

Misinformation is one of the most critical issues of recent years, which does harm to democracy, economics, and society. Despite all the attempts, traditional techniques are not powerful enough to address new challenges arising from the 4Vs (volume, variety, velocity, veracity) of Big Data. First, large volumes of data on social platforms are generated at unprecedented and ever-increasing scales. Existing misinformation detection techniques are designed for the conventional scale datasets, struggling to meet the requirements of scalability and storage. Second, social data and Web data involve a great variety of data formats in different modalities: texts, images, videos and arbitrary combinations of them. Third, data are generated in real time and continually arrives in the form of streams, facilitating the propagation of misinformation and fake news beyond control when they are detected. Fourth, the recent advances of AI-fabricated attacks like text synthesization, fake image generation and DeepFake videos create an additional layer of biases, noises, and abnormality in user behavior and content data. These challenges call for timely and robust techniques in monitoring, detecting, and mitigating misinformation by advancing topics in data management, data integration, data provenance, data quality, and stream processing.

Misinformation management techniques also need to work together with people, whose domain knowledge is on-par with the most complex AI techniques, and who must validate the automatic output for fairness and transparency. Recent human-in-the-loop platforms for such validation including Amazon Mechanical Turk and Snopes are growing in scale and expertise domains. At the same time, data management in these systems has become a new challenge with the expensive and slow-paced human labour. New data models and algorithms are needed to use human labour wisely and take into account the cognitive and physiological characteristics of the people involved.

This special issue seeks high-quality and original contributions that advance the concepts, methods, and theories of misinformation detection as well as address the mechanisms, strategies and techniques for misinformation interventions. All contributions should clearly address the knowledge gaps indicated in the literature and will be peer-reviewed by the panel of experts associated with relevant fields. We particularly welcome benchmarks, performance evaluation, testbeds for reproducibility validation.

Topics and Themes:

+ Fake news, social bots, misinformation, and disinformation on social data

+ Misinformation, opinion dynamics and polarization in social data

+ Online misbehavior (scams, deception, and click-bait) and its relation to misinformation

+ Information/Misinformation diffusion

+ Credibility and reputation of news sources, social data, and crowdsourced data

+ Fairness, accountability, transparency, and ethics in misinformation detection

+ Fake reviewers and reviews

+ Representation learning, patterns, and detection of bots, cyborgs, automated accounts

+ Algorithmic bias and discrimination avoidance

+ Augmented algorithmic models with bias-aware human-in-the-loop

+ Misinformation monitoring, detection, and mitigation with real-time, large-scale, and streaming systems

+ Initiatives against misinformation including news ecosystems, media practices, and computational moderations

+ Misinformation on critical domains (politics, science, society)

+ Predictive and visual analytics for decision-making on misinformation issues

Schedule

Submission: 1st August, 2020

First Round Notification: 1st November, 2020

First Round Revisions: 1st February, 2021

Second Round Notification: 1st April, 2021

Final Submission: 1st May, 2021

Publication: 1st August, 2021

Submission Information

We intend to follow the general submission guidelines of Information Systems:

https://www.elsevier.com/journals/information-systems/0306-4379/guide-for-authors

Co-Editors

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Karl Aberer is a full professor for Distributed Information Systems at EPFL, Switzerland, since 2000. His research interests are on semantics in distributed information systems with applications in peer-to-peer search, data integration, seman- tic web, trust management and social, mobile and sensor networks. Karl Aberer received his Ph.D. in mathematics in 1991 from ETH Zurich. From 1991 to 1992 he was a postdoctoral fellow at the International Computer Science Institute (ICSI) at the University of California, Berkeley. In 1992 he joined the Integrated Publication and Information Systems institute (IPSI) of GMD in Germany, where he was leading the research division Open Adaptive Information Management Systems. From 2005 to 2012 he was the director of the Swiss National Research Center for Mobile Information and Communication Systems (NCCR- MICS). From 2012 to 2016 he was Vice-President of EPFL responsible for information systems. He is co-founder and CEO of LinkAlong, a startup established in 2017 providing analytics capabilities for open source documents. He is member of the editorial boards of VLDB Journal, ACM Transaction on Autonomous and Adaptive Systems and World Wide Web Journal and chairman of the ICDE Steering Committee.

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Dr. Quoc Viet Hung Nguyen is a senior lecturer and an ARC DECRA Fellow (Australia Discovery Early Career Researcher Award) in Griffith University. He earned his Master and PhD degrees from EPFL (Switzerland). His research focuses on Data Integration, Data Quality, Information Retrieval, Trust Management, Recommender Systems, Machine Learning and Big Data Visualization, with special emphasis on web data, social data and sensor data. He is also interested in Linked Open Data and Event-based Systems. He published several papers in top-tier venues such as SIGMOD, VLDB, SIGIR, KDD, WWW, ICDE, IJCAI, AAAI, ICDM,

VLDBJ, and TKDE. He also served as a committee member of top-tier conferences such as WWW, CIKM, KDD, PAKDD, and DASFAA.

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Dr. Hongzhi Yin works as a senior lecturer and an ARC DECRA Fellow (Australia Discovery Early Career Researcher Award) with The University of Queensland, Australia. He received his doctoral degree from Peking University in July 2014, and his PhD Thesis won the highly competitive Distinguished Doctor Degree Thesis Award of Peking University. His current main research interests include recommender systems, social data analytics and mining, network embedding and mining, time series data and sequence data mining and learning, chatbots, federated learning, topic models, deep learning and smart transportation. He has published 120+ papers and won 5 Best Paper Awards such as ICDE'19 Best Paper Award and ACM Annual Best Computing Award as the main author, and most of them have been published in reputed journals and top international conferences including VLDB Journal, ACM TOIS, IEEE TKDE, ACM TKDD, ACM TIST, ACM SIGMOD, ACM SIGKDD, VLDB, IEEE ICDE, AAAI, IJCAI, SIGIR, WWW, ICDM, ACM Multimedia and CIKM. He is currently directing the RSBDI (Responsible and Sustainable Big Data Intelligence) Lab. RSBDI Lab aims and strives to develop socially responsible and environmentally sustainable data mining and machine learning techniques with theoretical properties to better discover actionable patterns and intelligence from large-scale, networked, dynamic and sparse data. The research of RSBDI Lab is directly motivated by, and contributes to, applications in E-commerce and marketing, social informatics, urban traffic and information security.

Additional Information (not for posting)

Annual or upcoming meetings where relevant papers appear:

- International Conference Very Large Data Bases (VLDB)
- ACM SIGMOD Conference (SIGMOD)
- International Joint Conference on Artificial Intelligence (IJCAI)
- International Artificial Intelligence Conference (AAAI)
- IEEE Conference Data Engineering (ICDE)
- The Web Conference (WWW)
- International Conference on Web Search and Data Mining (WSDM)
- International Conference on Web and Social Media (ICWSM)

Dissemination strategies:

- Reach out to PC-Chairs for mailings and paper recommendations
- Mailing lists: DBWorld, AISworld

- Web communities: https://facctconference.org/network/

We could also solicit the authors of conferences/workshops co-organized by the aforementioned colleagues to submit extended versions of their papers. This includes 1) the Social and News Media Misinformation Workshop (https://mediateworkshop.github.io/), which will be held on June 8-11 2020, in the context of ICWSM conference, and 2) the Web Conference 2019 (https://www2019.thewebconf.org/research-track/social-network-analysis-and-graph-algorithms).

Researchers who would be likely authors and reviewers:

- Alexios Mantzarlis (International Fact-Checking Network, Poynter Institute, USA)
- Aline Paes (Universidade Federal Fluminense, Brazil)
- Amir Ghasemian (Temple/Harvard University, USA)
- Angela Lee (University of Texas at Dallas, USA)
- Arkaitz Zubiaga (University of Warwick, UK)
- Bettina Berendt (University of Leuven, Belgium)
- Bill Adair (Duke University, USA)
- Chengkai Li (University of Texas at Arlington, USA)
- Cong Yu (Google Research, USA)
- Craig Silverman (Buzzfeed, USA)
- Daniel Lim (Duke Kunshan University, China)
- David Freeman (Facebook)
- Deokgun Park (University of Texas at Arlington, USA)
- Emiliano De Cristofaro (University College London, UK)
- Emilio Ferrara (University of Southern California USA)
- Emine Yilmaz (University College London, United Kingdom)
- Evangelos Papalexakis (University of California Riverside , USA)
- Fabiana Zollo (Ca' Foscari University of Venice, Italy)
- Francesco Marcelloni (University of Pisa, Largo Lucio Lazzarino, Italy)
- Gensheng Zhang (Google, USA)
- Giovanni Luca Ciampaglia (University of South Florida, USA)
- Haewoon Kwak (Qatar Computing Research Institute, USA)
- Huan Liu (Arizona State University)
- Ilias Leontiadis (Telefonica Research, Spain)
- Immanuel Trummer (Cornell University, USA)
- Ioana Manolescu (Inria Saclay, France)
- James Caverlee (Texas A&M University, USA)
- James T. Hamilton (Stanford University, USA)
- Jisun An (Hamad Bin Khalifa University, Qatar)
- Joemon Jose (The University of Glasgow, United Kingdom)
- Jonathan Stray (Columbia University, USA)
- Juliana Freire (New York University, USA)
- Jun Yang (Duke University, USA)
- Justin Cheng (Facebook)

- Kai Shu (Arizona State University)
- Kalina Bontcheva (University of Sheffield, UK)
- Kurt Thomas (Google)
- Kyomin Jung (Seoul National University, Republic of Korea)
- Laks V.S. Lakshmanan (University of British Columbia, Canada)
- Luis Gravano (Columbia University, USA)
- Maria Luiza Machado Campos (Federal University of Rio de Janeiro, Brazil)
- Mark Tremayne (University of Texas at Arlington, USA)
- Matteo Varvello (AT&T Labs- Research, USA)
- Meeyoung Cha (KAIST, Republic of Korea)
- Meng Jiang (University of Notre Dame, USA)
- Mevan Babakar (Full Fact, UK)
- Michael Sirivianos (Cyprus University of Technology, Cyprus)
- Michele Melchiori (University of Brescia, Italy)
- Mingyi Zhao (Snap Inc, USA)
- Naeemul Hassan (University of Mississippi, USA)
- Nicholas Diakopoulos (Northwestern University, USA)
- Paolo Papotti (Eurecom, France)
- Peng Gao (Princeton University, USA)
- Peter Fray (University of Technology Sydney, Australia)
- Preslav Nakov (Qatar Computing Research Institute, Qatar)
- Rahat Ibn Rafiq (ThoughtSpot, Inc.)
- Rob Procter (University of Warwick and Alan Turing Institute, UK)
- Savvas Zannettou (Max Planck Institute, Saarbrucken, Germany)
- Simon Baumgartner (Google, USA)
- Toshihiro Kamishima (AIST, Japan)
- Vivek Singh (Rutgers University, USA)
- Xavier Tannier (Sorbonne Universite, France)
- Yan Liu (University of Southern California, USA)
- Zubair Shafiq (The University of Iowa, USA)