The 5th International Workshop on Mining Actionable Insights from Social Networks (MAISoN 2020)

Special Edition on Dis/Misinformation Mining from Social media

Ebrahim Bagheri
bagheri@ryerson.ca
Ryerson University
Toronto, Canada

Huan Liu
huanliu@asu.edu
Arizona State University
Arizona, United States

Kai Shu
kshu@iit.edu
Illinois Institute of Technology
Chicago, Illinois

Fattane Zarrinkalam
fzarrinkalam@ryerson.ca
Ryerson University
Toronto, Canada

ABSTRACT

For the fifth edition of the workshop on Mining Actionable Insights from Social Networks (MAISoN), we organized a special edition with focus on dis/misinformation mining from social media, co-located with CIKM 2020. This topic has attracted a lot of interest from the community since the Coronavirus (COVID-19) epidemic has given rise to an increase of misinformation on social media. The aim of this edition was to bring together researchers from different disciplines interested in mining dis/misinformation on social media. In particular, the distinguishing focus of this special edition was its emphasis on techniques that use social media data for building diagnostic, predictive and prescriptive analysis models related to misinformation. This means that there is rigorous attention for techniques that can be used to understand how and why dis/misinformation is created and spread, to uncover hidden and unexpected aspects of dis/misinformation content, and to recommend insightful countermeasures to restrict the circulation of dis/misinformation and alleviate their negative effects.

CCS CONCEPTS

• **Information systems → Social networking sites**; **Information extraction**.

KEYWORDS

Social media, predictive modelling, domain insights, misinformation, disinformation, prescriptive modeling

1 INTRODUCTION

The wide adoption of *social media* resulted in an ocean of data which presents an interesting opportunity for performing data mining and knowledge discovery in a real-world context. The enormity and high variance of the information that propagates through large user communities influences the public discourse in society and sets trends and agendas in topics that range from marketing, education, business and medicine to politics, technology and the entertainment industry. This influence can however act as a double-edged sword, since it can also introduce threats to the community, if it is rooted in dissemination of *disinformation*, i.e. purposefully manipulated news and information, or *misinformation*, i.e. false and incorrect information, on social media. In recent years, the potential threats of dis/misinformation has been the subject of huge controversy in different domains like public healthcare systems, socio-economics, business and politics. For instance, the circulation of scientifically invalid information and news can negatively affect the way the public responds to the outbreak of a pandemic disease, like COVID-19. Threats can also be posed to the legitimacy of an election system by enabling opponent campaigns to shape the public opinion based on conspiracy theories stemmed from false information. Mining the contents of social media to recognize the instances of dis/misinformation is a very first step to immunize the public society against the negative impacts they could introduce.

2 OBJECTIVES AND TOPICS OF INTERESTS

Traditional research on dis/misinformation mining from social media mainly focuses on descriptive methods such as fake news detection and propagation analysis, malicious bot detection and fact-checking social media content. The main distinguishing focus of this workshop was the use of social media data for building diagnostic, predictive and prescriptive analysis models that can be used to understand how and why dis/misinformation is created and spread, to uncover hidden and unexpected aspects of misinformation content, and to recommend insightful countermeasures to restrict the circulation of misinformation and alleviate their negative effects.

The topics of interest to this workshop included but were not limited to the following:

- Descriptive models on fake news and malicious bot detection
- Explainable AI for detection of dis/misinformation
- User behavior analysis and susceptibility prediction with regard to dis/misinformation in social media.
- Trust and reputation in social media
- Misinformation propagation modeling and trace analysis
- Prescriptive countermeasure methods against formation and circulation of misinformation
- Predicting misinformation and bias in news on social media
- Predictive models for early detection of hoax spread on social media
- Assessing the influence of fake news on advertising and viral marketing in social media
- New datasets and evaluation methodologies to help predicting dis/misinformation

3 EARLIER EDITIONS

Previous editions of MAISoN workshop included:

- MAISoN 2017; co-located with ACM WSDM 2017 in Cambridge, United Kingdom.
- MAISoN 2018; co-located with IJCAI 2018 in Stockholm, Sweden.
- MAISoN 2019; co-located with ACM ICTIR 2019 in Santa Clara, CA, United States.
- MAISoN 2020; co-located with WWW 2020 which will take place online.

In the previous editions of MAISoN, each paper was carefully peer-reviewed by at least three members of the program committee. In the reviewing process, we ensured that we maintain high quality standards, while at the same time making sure that less-mature yet interesting work was also given a chance to be present and discussed at the workshop. At MAISoN 2017, our keynote speaker was Dr. Emre Kiciman (h-index: 36), Principal Researcher from Microsoft Research, who presented his work on *performing causal analysis of social media through observational studies*. At MAISoN 2018, we had two keynote speakers, namely Dr. Mike Preuss (h-index: 31) from the University of Muenster, Germany who discussed his recent work on *identifying propaganda in social media*, and Dr. Huijuan Wang (h-index: 23) from Delft University of Technology, discussing her work on *the modeling of social contagion on networks*. At MAISoN 2019, our keynote speaker was Prof Fabio Crestani (h-index: 37) who is a well-known and leading figure in the information retrieval community. For MAISoN 2020, Prof Cheng-Te Li delivered a keynote speech on *Explainable Detection of Fake News and Cyberbullying on Social Media*, which is very relevant and timely and aligned with the topic proposed in this edition.

4 WORKSHOP PROGRAM AND ORGANIZATION

MAISoN 2020 took place as a full-day workshop. Its program included four invited keynote talks, three panels (societal aspects, computational aspects and COVID-19 related aspects of misinformation) and the presentations for the accepted papers. Further, all paper submissions were reviewed by at least two members of the program committee based on its originality, significance, technical soundness, and clarity of expression.

4.1 Keynote Speeches and Panels

Our invited speakers and panelists were as follows:

Invited Speakers

- Fabrício Benevenuto (Universidade Federal de Minas Gerais)
- Emilio Ferrara (University of Southern California)
- Brian Weeks (University of Michigan)
- Reza Zafarani (Syracuse University)

Panel on Social Aspects of Misinformation

- Giovanni Luca Ciampaglia (University of South Florida)
- Panagiotis Takis Metaxas (Wellesley College)
- Miriam Metzger (University of California Santa Barbara)
- Paolo Rosso (Universitat Politècnica de València)
- Dietram A. Scheufele (University of Wisconsin)
- Aiping Xiong (Penn State University)

Panel on Computational Approaches to Misinformation

- Dongwon Lee (Penn State University)
- Preslav Nakov (Qatar Computing Research Institute
- Marinella Petrocchi (IIT-CNR)
- Reihaneh Rabbany (McGill University)
- Carolina Scarton (University of Sheffield)

Panel on Misinformation and COVID-19

- Nitin Agarwal (UALR)
- J. Scott Brennen (Reuters Institute)
- Kathleen Carley (Carnegie Mellon University)
- Srijan Kumar (Georgia Institute of Technology)
- Suzan Verberne (Leiden University)

4.2 Program Committee

The following members formed our program committee:

Steering Committee

- Marcelo G. Armentano (ISISTAN (CONICET-UNICEN))
- Ebrahim Bagheri (Ryerson University)
- Frank W. Takes (University of Amsterdam)

Program Committee

- Hossein Fani (University of Windsor)
- Anastasia Giachanou (Universitat Politècnica de València)
- Bing He (Universidad Mayor)
- Oana Inel (Delft University of Technology)
- Joemon Jose (University of Glasgow)
- Udo Kruschwitz (University of Regensburg)
- Haewoon Kwak (Qatar Computing Research Institute)
- Cheng-Te Li (National Cheng Kung University)
- Symeon Papadopoulos (Information Technologies Institute)
- Hemant Purohit (George Mason University)
- Francisco Rangel (Universitat Politècnica de València)
- Paolo Rosso (Universitat Politècnica de València)
- Francesca Spezzano (Boise State University)
- Damiano Spina (RMIT University)
- Arkaitz Zubiaga (Queen Mary University of London)