MISINFO 2021: Workshop on Misinformation Integrity in Social Networks*

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1 Workshop Description

Social media platforms and the web in general play an outsized role in the media consumption process. They have expanded the reach of media messaging through advertising and digital publications, and they provide a mechanism for expressing opinions and views to anyone with internet access. There is a flip side to this expanded access. These platforms are vulnerable to attacks and abuse of information processes [8], through misinformation campaigns organized by foreign adversaries and financially motivated actors [6], while misleading and polarizing views [4] from the extremes of the political spectrum receive viral distribution [1]. Fake-news, misinformation tactics, and extremism emerge as new threats to information integrity, and the public discourse.

This workshop brings together top researchers and practitioners from academia and industry to engage in a discussion about combating such threats to information validity on social networks and the web. This is an interdisciplinary topic, going beyond the typical Web Conference community, as it overlaps with psychology, sociology, political science, and economics, while raising legal and ethical questions.

Within this topic, the workshop focuses on the following broad themes:

– **Misinformation.** This includes detecting and combating misinformation, dealing with deep and shallow fakes, understanding the prevalence and virality of misinformation, identifying misinformation sources and origins, and measuring source and content credibility.

– **Polarization.** This includes defining models and metrics for polarization, studying echo chambers and filter bubbles, understanding opinion extremism and radicalization, and producing algorithms for mitigating polarization.

There is strong interest in the community in information integrity, misiniformation and opinion polarization, and there are several workshops with similar or related content, such as Integrity2020 [3] and Integrity2021 [7], ROME2019 [2], CyberSafety2019 [5]. The structure and content of the MISINFO2021 workshop follows the lines of these workshops.

2 Workshop Contents

The workshop combines invited talks along with contributed talks through a Call for Papers.

2.1 Invited Talks

The list of invited speakers includes leaders in the field from both academia and industry, and also from disciplines beyond Computer Science. The list of invited talks is the following:

• *Measuring Belief in Fake News in Real-Time.* Joshua A. Tucker.

Joshua A. Tucker is Professor of Politics, affiliated Professor of Russian and Slavic Studies, and affiliated Professor of Data Science at New York University. He is the Director of NYU's Jordan Center for Advanced Study of Russia, co-Director of the NYU Center for Social Media and Politics, and a co-author/editor of the award-winning politics and policy blog The Monkey Cage at The Washington Post. His research focuses on the intersection of social media and politics, including partisan echo chambers, online hate speech, the effects of exposure to social media on political knowledge, online networks and protest, disinformation and fake news, how authoritarian regimes respond to online opposition, and Russian bots and trolls. He is the co-Chair of the independent academic advisory team for the 2020 Facebook Election Research Study, and his most recent book is the co-edited Social Media and Democracy: The State of the Field (Cambridge University Press, 2020).

• *Understanding and Reducing the Spread of Misinformation Online.* David Rand.

David Rand is the Erwin H. Schell Professor and an Associate Professor of Management Science and Brain and Cognitive Sciences at MIT Sloan, and the Director of the Human Cooperation Laboratory and the Applied Cooperation Team. Bridging the fields of behavioral economics and psychology, David's research combines mathematical/computational models with human behavioral experiments and online/field studies to understand human behavior. His work

uses a cognitive science perspective grounded in the tension between more intuitive versus deliberative modes of decision-making, and explores topics such as cooperation/prosociality, punishment/condemnation, perceived accuracy of false or misleading news stories, political preferences, and the dynamics of social media platform behavior. His work has been published in peer-reviewed journals such Nature, Science, Proceedings of the National Academy of Sciences of the United States of America, the American Economic Review, Psychological Science, and Management Science. He has received widespread attention from print, radio, TV and social media outlets, and has also written popular press articles for outlets including the New York Times, Wired, New Scientist, and the APS Observer. He was named to Wired magazine's The Smart List 2012: "50 people who will change the world," chosen as a 2012 Pop!Tech Science Fellow, received the 2015 Arthur Greer Memorial Prize for Outstanding Scholarly Research, and was selected as fact-checking researcher of the year in 2017 by the Poytner Institute's International Fact-Checking Network. Papers he has coauthored have been awarded Best Paper of the Year in Experimental Economics, Social Cognition, and Political Methodology.

• *Combating Misinformation.* Lenny Grokop.

Lenny Grokop is a Software Engineer at Facebook. He currently works on detection, measurement and review systems within Central Integrity and previously built machine learning systems for document authentication and location-based products. Prior to Facebook he co-founded two companies in the mobile location space: PathSense, a low-power always-on location SDK, and Zenhavior, a smartphone telematics app for safe driving. Prior to this he worked at Qualcomm Research on contextually-aware ML algorithms leveraging mobile sensor data. He received a M.S. and Ph.D. in Electrical Engineering and Computer Sciences from the University of California, Berkeley, and bachelors degrees in Electrical Engineering and Mathematics from the University of Melbourne.

• *Computational Fact Checking is Real, but will it stop Misinformation?* Paolo Papotti.

Paolo Papotti is an Associate Professor at EURECOM, France since 2017. He got his PhD from Roma Tre University (Italy) in 2007 and had research positions at the Qatar Computing Research Institute (Qatar) and Arizona State University (USA). His research is focused on data integration and information quality. He has authored more than 100 publications, and his work has been recognized with two "Best of the Conference" citations (SIGMOD 2009, VLDB 2016), two best demo award (SIGMOD 2015, DBA 2020), and two Google Faculty Research Award (2016, 2020). He is associate editor for PVLDB and the ACM Journal of Data and Information Quality (JDIQ).

• *Combating Inaccurate Information on Social Media.* Mohsen Mosleh.

Mohsen Mosleh is a Lecturer (Assistant Professor) at University of Exeter Business School and a Research Affiliate at MIT. Mohsen has been a postdoctoral

fellow in the Human Cooperation Lab at the MIT Sloan School of Management and the Department of Psychology at Yale University. Prior to his post-doctoral studies, Mohsen received his PhD from Stevens Institute of Technology in Systems Engineering with a minor in data science. He has five years of prior industry experience as a Software & Systems Integration Lead. Mohsen's research interests lie at the intersection of computational/data science and cognitive/social science. In particular, he studies how information and misinformation spread on social media, collective decision-making, and cooperation.

• *New Frontiers for Fake News Research on Social Media in 2021 and Beyond.* Nir Grinberg.

Nir Grinberg is an Assistant Professor at the Department of Software and Information Systems Engineering at Ben-Gurion University, Israel. His research investigates areas where large-scale information systems are suboptimal for people – for example, by not meeting people's needs, goals or expectations – and proposes new computational measures to bridge the gaps. For example, he studied the scale and scope of fake news on Twitter among voters during the 2016 presidential election, examined the effect of Facebook likes and comments on people's behavior and attitude, and proposed new measures to quantify engagement with online news. He collaborated on research projects with top industry partners such as Facebook, Yahoo! Labs, Chartbeat, SocialFlow, and Bloomberg L.P. He holds a Ph.D. in Computer Science from Cornell University, a M.Sc. in Computer Science from Rutgers University, and a double major B.Sc. in Physics and Computer Science from Tel Aviv University.

2.2 Contributed Talks

The workshop invited contributions though an open Call for Papers. All submissions were reviewed by at least two program committee (PC) members. The following four papers were accepted based on their quality, and they were presented in the workshop.

• *Memes to an End: A look into what makes a meme offensive.* Yehia Elkhatib and Kieran Hill

• *Can Celebrities Burst Your Bubble?* Tugrulcan Elmas, Kristina Hardi, Rebekah Overdorf and Karl Aberer

• *An automatic framework to continuously monitor multi-platform information spread.* Zhouhan Chen, Kevin Aslett, Jen Rosiere Reynolds, Juliana Freire, Jonathan Nagler, Joshua A. Tucker and Richard Bonneau

• *An Analysis of People's Reasoning for Sharing Real and Fake News.* Anu Shrestha and Francesca Spezzano

3 Workshop Organization

The organizing committee is the following:

- **Lluis Garcia-Pueyo**, Facebook, is an Engineering Manager at Facebook, where he leads the News Feed Integrity Distribution pillar focusing on personalization, discovery and reduction of negative experiences in News Feed and Stories ranking.
- **Anand Bhaskar**, Facebook, is a Research Scientist at Facebook, where he works on building and incorporating content quality signals into News Feed ranking and studying the network effects of ranking changes.
- **Prathyusha Senthil Kumar**, Facebook, is an Engineering Manager at Facebook, where she leads News Feed Integrity efforts leveraging machine learning techniques to understand and utilize content quality in feed ranking and to reduce subjective bad experiences through personalized ranking interventions.
- **Kiran Garimella**, is the Michael Hammer postdoctoral researcher at the Institute for Data, Systems, and Society at MIT. His research focuses on using digital data for social good, including areas like polarization, misinformation and human migration.
- **Panayiotis Tsaparas** is Associate Professor at University of Ioannina,Greece. His research focuses on algorithmic data mining, with emphasis on social network analysis and the intersection with social issues such as polarization and fairness.
- **Yu Sun**, Twitter, is a Machine Learning Engineer at Twitter's Search team, which builds one of the most popular real time search engines for tweets and users. His research interests include context-aware recommendations and personalization.
- **Francesco Bonchi** is Scientific Director at the ISI Foundation, Turin, Italy, where he's also coordinating the "Learning and Algorithms for Data Analytics" Research Area. His recent research interests include algorithms and learning on graphs and complex networks, fair and explainable AI, and more generally, privacy and all ethical aspects of data analysis and AI.

All members of the organizing committee also serve in the Program Comittee. The Program Committee was also complemented by the following members:

- **Antonis Matakos**, Ph.D. Student, Aalto University, Finland.
- **Panagiotis Papadakos**, Post-Doctoral Fellow, ICS-FORTH, Greece.
- **Corrado Monti**, Post-Doctoral Fellow, ISI Foundation, Italy

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