

Title: Socio-computational Analysis of Mobs: A Social Network and Cyber Forensic Approach

Description: Since the year 2003, the term “flash mob” has been studied in various disciplines and was referred to by various media outlets to describe various events. The term "flash mob" originally meant to describe a phenomenon in which a group of people assembles in a public space, perform a seemingly random act, then *quickly* disperse. This phenomenon was expected to die just like other types of public performances, e.g., the eighties' raves. However, this phenomenon is still alive and became widespread in various forms. A “mob” is an event that is organized via social media, email, SMS, or other forms of digital communication technologies in which a group of people (who might have an agenda) get together online or offline to collectively conduct an act and then disperse (quickly or over a longer period of time). Various theories such as the theory of collective action, the theory of connective action, the motivated reasoning theory, the information manipulation theory, among others can help in understanding the motivation of participants, coordination efforts, and the outcome of these events. These theories can also help us to describe, relate, explain, and predict our observations. In addition to the humans participating in these events, non-humans, i.e., artificial agents or social bots - which are computer programs to accomplish tasks on your behalf such as tweeting, retweeting, and liking a tweet - also participate in a mob.

Topics of the tutorial include:

- What we mean by mobs and what are their types?
- Which social science theories help in explaining such a phenomenon?
- How to use social network analytics and social cyber forensics to study mobs?
- Tools (e.g., Maltego, BlogTracker, vTracker) that can be used to collect and analyze mobs.
- Various case studies of mobs from our research.

Expected Audience: graduate students, researchers, subject matter experts, faculty, industry, program officers, policymakers in the relevant topical area.

Presenters

Samer Al-khateeb is an assistant professor at the Department of Computer Science, Design and Journalism, College of Arts and Sciences, at Creighton University. His research is in the area of social network analysis and social cyber forensics with a focus on Deviance in Social Media such as studying the deviant acts on social media (e.g., deviant cyber flash mobs, cyber propaganda campaigns) that are conducted by deviant groups (e.g., Daesh or ISIS, Black-hat hackers, and Propagandist) which aim to influence individual's behaviors and provoke hysteria among citizens. In addition to that, he studies the type of actors these deviant groups use to perform their acts, i.e., are they human (e.g., internet trolls) or automated actors (e.g., social bots) by leveraging social science theories (e.g., the theory of collective action, Information Manipulation Theory), social network analysis (e.g., centralities and community detection algorithms), and social cyber forensics (e.g., metadata collection to uncover the hidden relations among these actors across platforms). His publications include a book, book chapters, journal papers, conference proceedings, and conference presentations. He won various awards such as the Staff Achievement Award for Educational Achievements, Excellence in Research Award, Outstanding Graduating Student Award (Master's Level), the Best Paper Awards, 2nd Place Most Innovative Award, and 2nd Place Societal Impact Award, among others.

Nitin Agarwal is the Director of the Collaboratorium for Social Media and Online Behavioral Studies (COSMOS) research center and the Jerry L. Maulden-Entergy Endowed Chair & Distinguished Professor of Information Science at University of Arkansas – Little Rock. His research aims to push the boundaries of our understanding of digital and cyber social behaviors that emerge and evolve constantly in the modern information and communication platforms. He is leading projects with a combined funding of over \$20 million from an array of U.S. federal agencies. He developed publicly available social media analysis tools (BlogTracker and vTracker), assisting NATO Strategic Communications and Public Affairs, European Defense agencies, Australian Defense Science and Technology agency, Singapore government, Arkansas Attorney General’s office, among others. Dr. Agarwal participates in the National Tech Innovation Hub launched by the U.S. Department of State to defeat foreign based propaganda. Dr. Agarwal’s research contributions lie at the intersection of social computing, behavior-cultural modeling,

collective action, social cyber forensics, Artificial Intelligence, data mining, machine learning, smart health, and privacy. From Saudi Arabian women's right to drive cyber campaigns to Autism awareness campaigns to ISIS' propaganda campaigns and anti-West/anti-NATO disinformation campaigns, at COSMOS, he is directing several projects that have made foundational and applicational contributions to social and computational sciences, particularly in understanding coordinated cyber campaigns. He has published 10 books and over 200 articles in top-tier peer-reviewed forums including the NATO's Defense StratCom Journal, with several best paper awards and nominations. His most recent book explores the deviant behaviors on the Internet and is published by Springer in their series on cybersecurity. His work has been covered by local, national, and international media including Bloomberg, US News, KUAR, Arkansas Business, Arkansas Times, Arkansas Democrat Gazette, and many others. Dr. Agarwal obtained Ph.D. from Arizona State University with outstanding dissertation recognition in 2009. He was recognized as one of 'The New Influentials: 20 In Their 20s' by Arkansas Business in 2012. He was recognized with the University-wide Faculty Excellence Award in Research and Creative Endeavors by UALR in 2015 and 2021. Dr. Agarwal received the Social Media Educator of the Year Award at the 21st International Education and Technology Conference in 2015. In 2017 the Arkansas Times featured Dr. Agarwal in their special issue on "Visionary Arkansans". Dr. Agarwal was nominated as International Academy, Research and Industry Association (IARIA) Fellow in 2017, an Arkansas Academy of Computing (AAoC) Fellow in 2018, and an Arkansas Research Alliance (ARA) Fellow in 2018. He can be reached at nxagarwal@ualr.edu.