Modeling individual and group behavior in complex interactive systems

Abstract

The unprecedented increase in social media use and the large-scale collection of information poses new threats as well as bringing new opportunities. Modeling and managing complex interactive systems require mining of social and technological signals for new insights into human society and individual behavior. Online social networks have been taking an essential part in our access to information and it acts as a good proxy for studying population-level behavioral patterns and making individual-level predictions. In this talk, I will be presenting my research on analyzing various account behaviors from social bots disseminating misinformation to human venting their emotions to their friends. First, I will present Botometer, a platform for detecting social bots, that is widely adopted in academia and industry to study the dissemination of misinformation and characterization of automated behavior. Using estimations by Botometer, I will show how bot activities have effects on information spread, and I will demonstrate our results on estimating the prevalence of social bots and anomalous patterns captured among popular accounts investigated. Later I will demonstrate how we can leverage social media to study the evolution of human emotions in a minute-scale resolution at the population scale. I will conclude my talk by presenting results on the ego-centric analysis of individual well-being through analyzing sleep and online self-reports and explain how these projects are instrumental for my research agenda to model interactions between well-being, online and offline activities, and various biological information.

Short Bio

Onur Varol is a postdoctoral research associate at Northeastern University at the Center for Complex Network Research. He completed his PhD in Informatics at Indiana University, Bloomington (USA). His thesis focuses on analysis of manipulation and threats on social media and he awarded 2018 University Distinguished Ph.D. Dissertation Award. He has developed system called Botometer to detect social bots on Twitter and his team ranked top 3 worldwide at the 2015 DARPA Bot Detection Challenge. Efforts on studying social bots yield publications on prestigious venues such as International Conference of Web and Social Media (ICWSM), Nature Communications, World Wide Web (WWW) conference, and Communications of the ACM. He interned at Microsoft Research for two summers during his PhD to develop causal analysis of large-scale social media timelines. He is currently working on quantifying success of online personas and impact of their actions. He is also modeling user interactions, leveraging online data across multiple platforms to understand conscious and unconscious behaviors.

High resolution profile image and the text version of my bio are available on my website: onurvarol.com/bio.html

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