

PRESS RELEASE

Research by HBKU's QCRI on viral social media events shows people 'flock like birds'

Doha, April 9, 2016 – New research developed in Qatar by a scientist at one of Hamad bin Khalifa University's (HBKU's) national research institutes has shown that people behave like schools of fish or flocks of birds when events go viral on social media.

The research, led by Dr. Javier Borge-Holthoefer, a scientist at HBKU's Qatar Computing Research Institute (QCRI), with collaboration from Northeastern University, the Center for Data Science (New York University) and the University of Pennsylvania, analyzes how collective attention builds on Twitter.

Borge-Holthoefer and his fellow scientists looked at five different events as they unfolded on Twitter: the Spanish 15M protests, the Outono Brasileiro (Brazilian autumn) movement, the announcement of the Higgs boson discovery, the release of a Hollywood blockbuster movie, "The Dark Knight Rises" and the acquisition of Motorola by Google.

Borge-Holthoefer said the researchers detected a change in the communication time scale from slow to fast and the network structure from hierarchical to distributed in the reactions to the events.

They discovered that often the events started with just a small, scattered group of people planning them but gained momentum. As the time between tweets on a topic decreased and the elements of them became increasingly aligned, some users were leading as others started to adopt a similar opinion. However, at some point the alignment was complete with no clear leader, and leaders became indistinguishable from followers.

"I would say that the result is intriguing, because it relates human unplanned behavior to other collective behavior we observe in nature such as in bird flocks and fish schooling," Borge-Holthoefer said.

The researchers found there were early warning signs that could detect when a transition was about to take place in the build-up of collective attention.

They discovered that as the pace of tweeting accelerated, the complexity of the information exchange increased.

"These early warnings happen some time before a lot of people start tweeting about an issue," Borge-Holthoefer said.

The research was published in the journal, *Science Advances*, on Friday.

Borge-Holthoefer said further work and refinement could potentially lead to reliable methods to forecast episodes of collective attention or behavior.

ENDS

About Qatar Computing Research Institute

Qatar Computing Research Institute (QCRI) is a national research institute within Hamad bin Khalifa University. As a national research institute, QCRI aims to build Qatar's innovation and technology capacity by focusing on large-scale computing challenges that address national priorities for growth and development, supporting Qatar's transformation from a hydrocarbon-based economy to a knowledge-based economy. In doing this, QCRI conducts world-class multidisciplinary computing research that is relevant to the needs of Qatar, the wider Arab region, and the world. It performs cutting-edge research in such areas as Arabic language technologies, social computing, data analytics, distributed systems, cyber security and computational science and engineering. The research conducted at QCRI is aligned with the Qatar National Research Strategy and supports the strategic priorities outlined in the Qatar National Vision 2030.

For more information, please visit www.qcri.qa

About Hamad bin Khalifa University

Hamad bin Khalifa University (HBKU), a member of Qatar Foundation for Education, Science and Community Development, is an emerging research university that is building its foundation upon unique collaborations with local and international partners. Located in Education City, HBKU delivers undergraduate and graduate programs through its College of Science and Engineering, Law School, College of Public Health, Qatar Faculty of Islamic Studies, and its College of Humanities and Social Sciences. It also provides unparalleled opportunities for research and scholarship through its three national research institutes, and its Center of Executive Education delivers customized programs for the business community of Qatar and the region, in line with Qatar National Vision 2030.