Jingguo Wang's primary research focus is on cybersecurity. In his research, Dr. Wang often incorporates cross-disciplinary methodologies — applying models from fields such as criminology and psychology — as new approaches to studying the behaviors that are related to information security.

In 2019, for example, Wang authored a study on the risk of insider threats to financial institutions. "We mainly looked at how the insider can take advantage of an opportunity to try to access something that they cannot have access to," Wang said. The research extended criminal opportunity theory from criminology literature and was among the first studies to use behavioral logs to analyze insider threats to information assets.

Another study, published in February in the *Information Systems Journal*, analyzed how social influences at both individual and organizational levels weaken an organization's enforcement of information security policies. One is how well employees perceive a rules-adherence environment at the organizational level; the other is how well they observe practices through peer interactions. Wang and associates used employee survey data for the investigation.

Wang currently is revising a journal article on research that proposes new methodologies for addressing ransomware attacks. "We tried to understand how the defender responded to the ransomware attacks in terms of their investment, in terms of whether they pay or not, and if any policy interventions are effective," he said.

Although much of Wang's research is focused on business issues, he also applies information security perspectives to individual concerns. He just completed a study examining how parental online privacy concerns influence their children's self-disclosure behavior. "We collected data from the parents as well as from the children, and we looked into how parents' privacy concerns impact the children's privacy concerns and whether any parental mediation style can change behavior," Wang said.

From the personal level to a global scale, Wang employed his information systems and computer science knowledge and experience to study a large social issue, as demonstrated in his highlighted research on social media and emerging infectious diseases.

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2007 - PhD, Management Science and Systems, State University of New York at Buffalo

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RESEARCH SPOTLIGHT

TITLE: *Mutual Influences between Message Volume and Emotion Intensity on Emerging Infectious Diseases: An Investigation with Microblog Data*

WANG'S SUMMARY: This research, published in the June issue of *Information and Management* journal and conducted with collaborators in China, is a study of both the volume and emotional content of social media posts during an emerging infectious disease outbreak. In this case, the outbreak was the avian influenza (H7N9), which emerged in China in February 2013, but the findings have notable timeliness and significance to the current COVID-19 pandemic. "What we did in this article is that we looked into the social media during this outbreak period," Wang said. Researchers used computer science natural-language processing methods to analyze the emo-

tional content in 565,427 microblog posts on Sina Weibo, China's version of Twitter. "We looked into how the microblogs evolved over time … the volume and the number of the posts over the time, and the emotion that was expressed in the message —how the emotion and the volume reinforce each other and play out over the time."

Wang determined that there is such a cyclical relationship between the volume of negative emotions, particularly fear, and the intensity of the fear expressed. "We also see there is a positive emotion here expressed in the content, but the positive emotions do not have such a kind of cyclical relationship between the message volume," Wang said. "The impact of the negative emotion, of fear in particular, on the message volume itself is going to be sustained longer than the positive emotion." From the findings, Wang and his colleagues noted that that emotions with high arousal could be more contagious, suggesting the importance of proper interventions because of the negative emotions that could build up over the course of an outbreak. Negative emotions influence the public to act in such a way that further increases the intensity of negative emotions, the researchers reported, pointing to the need to improve the efficiency of forecasting models that could predict the trend of the public's reaction and provide information for relevant stakeholders. Wang and his associates proposed an approach and analysis framework for public health management to identify early signals in the public's reaction to emerging disease events that could potentially indicate the trends of the outbreak quicker and more reliably compared to traditional methods of public health reporting.

PUBLISHED RESEARCH: *Information and Management, Computers in Human Behavior, Information Systems Journal, Information Systems Frontiers, Decision Support Systems, European Journal of Operational Research, Journal of the Association for Information Systems, MIS Quarterly, Journal of Business Research, Information Systems Research, Journal of Management Information Systems,* among others.