



Computer Science Seminar



Toward detecting and understanding online abusive behaviors in user-contributed sites

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Abstract - The Internet has become a critical front in the war on terrorism. This is possibly due to the low degree of control enforced by popular user-contributed sites, such as Facebook, Picasa, and Twitter. The ability to generate unverified accounts, which is crucial to preserving the privacy of honest citizens, has created a fertile environment for malicious users and cyber criminals. Despite much progress in the area of Web security, including cryptography, intrusion detection, and artificial intelligence, this problem is largely unsolved, and while some non-user-centered problems have been addressed quite effectively by means of automated filters and advanced machine learning techniques, malicious individuals are still able to push their agendas almost undisturbed.

Existing solutions synthesize human behavior in an oversimplified manner, and are often unable to model the complexity underlying the cognitive decision to do harm. From the social science perspective, complementary and sometimes contrasting theories of deviance have been proposed, but none has been applied to early detection of deviance in the cyber context.

This talk will discuss social science and computational methodologies to build a socio-computational framework that takes an intelligence-driven approach to this problem. We discuss game theoretic models aiming at understanding the behavior of normal and deviant users engage in online networks, and show results of our study of the evolution of deviant behavior within this context. Further, we present results so far from our studies related to detecting and classifying user-contributed content as indicative of deviant behavior (e.g., cyberbullies). We conclude with an outlook at our unsolved research challenges in the space of detection of deviant behavior.

Brief Bio - Dr. Anna Squicciarini is an assistant professor at the College of Information Sciences and Technology at Pennsylvania State University. Squicciarini's main research interests lay at the crossroad of information and system security, and include access control, privacy, and security in modern IT ecosystems. In the recent years, she has focused on security issues in the context of social networks, with emphasis on access control, data privacy and deviance. Squicciarini earned her Ph.D. in Computer Science from the University of Milan, Italy, in March 2006. In July 2002, she received the equivalent of a combined bachelor's/master's degree in Computer Science, also from the University of Milan. From 2006 until the end of 2008, Squicciarini was a post-doctoral research associate at Purdue University, where she expanded her research interests to include security for grid systems and identity theft. She was involved in numerous NSF research projects on digital identity management and security for grid systems. Squicciarini is the author or co-author of more than 80 conference papers and over 20 journal articles. Her research work has been funded by the National Science Foundation, Army Research Office, Google and HP Research Lab. She is the recipient of the prestigious NSF CAREER award, 2015. She serves as a program chair for ACM Codaspy 2015 and is committee member for many relevant security and privacy conferences, including ACM Sacmat, IEEE International Conference on Distributed Systems 2015, ACM Asiaccs and many others.