Title: A Socio-Technical Approach to International Cyber-Security

Abstract:

Studying international aspects of cyber security requires taking into account both technical and social dimensions. However, the majority of cyber security research has only focused on the technical dimension. In my work, I study international cyber-security using a socio-technical approach that combines data science techniques, computational models, and network science techniques.

I will start by presenting my work on empirically identifying factors behind international variation in cyber-attack exposure and hosting. I use data from 10 million computers worldwide provided by a key anti-virus vendor. The results of this work indicate that reducing attack exposure and hosting in the most affected countries requires addressing both social and technical issues such as corruption and computer piracy. Then, I will present a computational methodology to assess countries' cyber warfare capabilities. The methodology captures political factors that motivate countries to develop these capabilities and technical factors that enable such development. Together, these projects show that bridging the social and technical dimensions of cyber security can improve our understanding of the dynamics of international cyber security and have a real-world impact.

Biogrphy:

Ghita Mezzour is an Assistant Professor at the International University of Rabat. She received her Ph.D. degree from Carnegie Mellon University (CMU) in the United States in May 2015. At CMU, she was part of both the School of Computer Science and the Electrical and Computer Engineering Department. Her research interests are at the intersection of cyber security, big data, and socio-technical systems. She holds a Master and a Bachelor in Communication Systems from the Ecole Polytechnique Fédérale de Lausanne in Switzerland.