Cyber-risk informatics address the elephant in the room

BY DENNIS COSTA

When talking about cybersecurity, the parable of the blind men and an elephant comes to mind. The story, which originated long ago in the Indian subcontinent, tells of a trio of blind men who run across an elephant for the first time and begin to touch the animal to get a feel for its appearance. One man touches the elephant's tusk, the other its side, while another touches its tail. When the men reunite to discuss their findings, they can't agree on what the elephant looks like.

"Much the same happens when it comes to cyber-risk assessment and management," said Dr. Mehmet Sahinoglu, founder & director of the Informatics Institute and the Cybersystems and Information Security graduate program at Auburn University in Montgomery, Ala. "Network safety is such a complex, multifaceted topic that cyber-risk specialists are like the veritable blind men grasping at parts and unable to understand the elephant completely," he added.

The computer security expert and author of the upcoming book "Cyber-Risk Informatics: Engineering Evaluation with Data Science," to be published by Wiley next January, recently gave a series of talks on the topic at the Universidad Politécnica de Puerto Rico in San Juan.

"The universal message here isn't seeking total 'security,' in the sense that the blind men will never be able to obtain a perfect knowledge of the elephant," the expert added. "Rather, specialists should focus on managing the 'insecurity,' or understanding the elephant in the best manner that the blind men could."

In short, the workshops tried to tackle this metaphor by eschewing traditional case studies in favor of a more hands-on, practical approach to cybersecurity, Sahinoglu explained. With topics such as statistical methods to assess large cybersystems and simulations of cloud-based systems using stochastic and Monte Carlo methods (meaning with random variables and sampling), the workshops delved deep into the mathematics of cybersecurity and placed the emphasis on the "science" in computer science.

Despite the advanced topics that were discussed, the workshops attracted a sizable number of participants, said Dr. Otoniel Rodríguez, who heads the university's Electrical & Computer Engineering and Computer Science Department. "People from various walks attended the workshop, from information-technology specialists at banks to government officials," he said. "There is definitely a lot of interest and demand in this topic."

The university has incorporated courses toward a certificate in information assurance and another one in computer forensics, both part of the Politécnica's master's degree programs in computer systems and computer engineering, Rodríguez said. "What we hope to achieve with Dr. Sahinoglu is to collaborate further with [Auburn University] to enrich the experience for our students." ∎