DISTINGUISHED WEBINAR SERIES IN ARTIFICIAL INTELLIGENCE AND CYBER SECURITY

Adaptive Multi-Factor Authentication & Cyber Identity

Featuring Dipankar Dasgupta, Ph.D.
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The University of Memphis

Abstract

Authentication is a critical part to ensure the identity of a legitimate user. During authentication, an individual's credential is validated with a specific computational technique to determine the association of the user with his/her claimed identity. In this talk, I will discuss an adaptive multi-factor authentication (A-MFA) framework which uses adaptive selection of multiple modalities at different operating environment so to make authentication strategy unpredictable to hackers. This methodology incorporates a novel approach of calculating trustworthy values of different authentication factors while the computing device being used under different environmental settings. Accordingly, a subset of authentication factors is determined (at triggering events) on the fly thereby leaving no exploitable a priori pattern or clue for adversaries. Such a methodology of adaptive authentication selection can provide legitimacy to user transactions with an added layer of access protection that is not rely on a fixed set of authentication modalities. Robustness of the system is assured by designing the framework in such a way that if any modality data get compromised, the system can still perform flawlessly using other non-compromised modalities. Scalability can also be achieved by adding new and/or improved modalities with existing set of modalities and integrating the operating/configuration parameters for the added Modality. I will highlight what type of evaluation be required for such identity management software to detect possible deep fakes and other forms of faking biometrics. Other attacks on current means of identity validation may become possible. What would be what good figures of merit to be used as response variables? What are good factors over which we would need to test for next-generation identity eco-systems.

Biography:

Dr. Dipankar Dasgupta is a Professor of Computer Science at the University of Memphis since January 1997. He is a leading figure in the application of bio-inspired and machine learning approaches to cyber defense. His groundbreaking works, including digital immunity, negative authentication, cloud insurance model, and Auth-Spectrum, have earned recognition in Computer World Magazine and other media outlets. With over 300 publications, 20000+ citations, and an h-index of 64, Dr. Dasgupta's multidisciplinary research is highly acclaimed. He has received numerous awards, including the 2012 Willard R. Sparks Eminent Faculty Award and the 2014 ACM SIGEVO Impact Award. As the founding Director of the Center for Information Assurance (CFIA) at the University of Memphis, he has played a key role in education, training, and outreach activities on cyber security and Information Assurance since 2004. Dr. Dasgupta is a Fellow of IEEE since 2015.

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Thursday, Jan. 25th, 2024

TIME:
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LOCATION:
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