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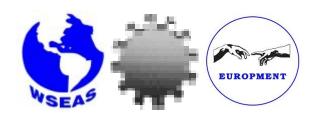
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Plenary Lecture 1

Human-Centered Computational Modeling for Trustworthy Cloud Communications



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Abstract: With the support of the Internet cloud, people are using online apps for every form of transaction, presenting new ways to communicate and collaborate. Security in this scenario becomes all important, but physical communication becomes unavailable in the virtual world, and identifying potentially deceptive behavior becomes even more difficult. In fact, there are subtle but noticeable differences in communicative intent and dynamic relationship metrics relating to people's virtual interactions that can be observed, logged, collected, and triangulated over time and space. We can infer intention, and identify communicative signals that may explain behavioral change under various circumstances. Dr. Ho's research is to construct a model that will duplicate the computational thinking behavior essential to understanding human social interactions in cyberspace - with the ability to discern behavioral anomalies in human communication. This model will be useful for purposes of guarding against deception in identity theft and insider threat scenarios going beyond the physical context. This has become a serious socio-technical problem because the geographically dispersed "virtual organization" is fast becoming the norm in global business circles. This approach breaks new ground in using social psychological theories to create a computational framework for discerning anomalies in humans' social and virtual interactions at both an individual and group level. The resulting cognitive model will attempt to detect and analyze human disposition, e.g., trustworthiness, cooperativeness, competency, and compatibility, etc. Dr. Ho studies to model its capabilities on the way humans make such judgments, ultimately creating an automated human-like sensor to discern identity and disposition. With a rich dataset collected, focused on the communicative intent, this work will be a significant extension of current research in linguistic forensics and NLP to identify - from text and behavioral patterns - social intent that is not explicitly stated.

Brief Biography of the Speaker:

Shuyuan Mary Ho, Ph.D. is Assistant Professor at Computing and Security Technology Program at Drexel University. Dr. Ho's domain expertise is centered on ISS management. Her background includes a portfolio in ISS research and industry, with a track record of dedicated persistence in research on critical problems. The highlight of her experience in the information systems industry includes a Virtual Private Network (VPN) / Certificate Authority (CA) 4-year technology transfer project for the ROC government, C4ISR Foreign Military Sale (FMS) projects, ROC Air Force Security Operations Center (SOC) project, and Taiwan Advanced Tactical Datalink Systems (TATDLS) teamed up with Northrop Grumman.

Dr. Ho received awards and scholarship through NSF-funded activities e.g., 2009 Consortium for the Science of Socio-technical Systems (CSST), 2009-2011 Women's Institute in Summer Enrichment (WISE) and 2011 Curriculum Development in Information Security and Assurance (CDSIA) workshops organized by Team for Research in Ubiquitous Secure Technology (TRUST). Dr. Ho's recent research is focused on computational modeling of trustworthy cloud communications. Using online game-play, Dr. Ho simulates various cyber threats situations e.g., identity theft, lie detection, betrayal, and insider threats using social media. Dr. Ho's research interests include information systems security (ISS), socio-technical studies, human-computer interactions (HCI), social computing and human-centered computing, and research that involves cyber infrastructure and digital library. Her work has been accepted in peer-reviewed publications, and has been recognized nationally and internationally. Prior to her faculty appointment at Drexel, Dr. Ho worked on a NSF-funded digital library research project on a post-doctoral research associate capacity at New Jersey Institute of Technology. Dr. Ho received her Ph.D. in information science and technology from Syracuse University iSchool, M.Phil. in information transfer from Syracuse University iSchool, M.B.A. from University of Hartford Connecticut, and Computer Science from Ohio Dominican University.

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