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"POLICY ANALYSIS FOR ADMINISTRATIVE ROLE-BASED ACCESS CONTROL"

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Abstract:

Role-Based Access Control (RBAC) is a widely used model for expressing access control policies. In large organizations, the RBAC policy may be collectively managed by many administrators. Administrative RBAC (ARBAC) is a model for expressing the authority of administrators, thereby specifying how an organization's RBAC policy may change. Changes by one administrator may interact in unintended ways with changes by other administrators. Consequently, the effect of an ARBAC policy is hard to understand by simple inspection. In the talk, I will present techniques for analyzing ARBAC policies, in particular to determine reachability properties (e.g., whether a user can eventually be assigned to a role by a group of administrators) and availability properties (e.g., whether a user cannot be removed from a role by a group of administrators) implied by a policy. We first establish the connection between security policy analysis and planning in Artificial Intelligence. Based partly on this connection, we show that reachability analysis for ARBAC is PSPACE-complete. We also give algorithms and complexity results for reachability and related analysis problems for several categories of ARBAC policies, defined by simple restrictions on the policy language.

Bio:

Ping Yang joined the Department of Computer Science at Binghamton University as an Assistant Professor in 2006. She received her Ph.D in Computer Science from Stony Brook University, M.E. in Computer Science from the Chinese Academy of Sciences, and B.S in Computer Science from Zhongshan (Sun-Yatsen) University. Her research interests are in the areas of Security, Verification, Programming Languages, Software Engineering and Program Analysis.