

EECS Seminar

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11:00 a.m.

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Apollo Room, Nichols Hall

*A New Model of Trust for Reasoning about
Trustworthiness of Systems involving
Untrustworthy or Semi-trustworthy Components*

Abstract

Information technology is increasingly driven by the requirements of confidentiality, integrity, availability, and usability of systems and information resources. To measure our confidence in the proper functioning of these systems according to stated requirements, the notion of 'trust' is indispensable. Secure systems have been built under the premise that concepts like "trustworthiness" or "trusted" are well understood. However, there is no agreement among researchers about the meaning, representation, evaluation, evolution, and method of comparison/composition of trust. The lack of agreement makes it difficult to reason about trustworthiness in different security contexts, especially in co-operative functioning of inter-operative systems.

In this talk, I present a new model of trust to alleviate the above problems. In this model, trust is a quantitatively measurable entity, depending on different independent parameters. The model proposes methods to evaluate the parameters and the trust level, and methods to formalize trust evolution, compare and compose two trust relationships. We also propose formalism that enables the model to be used in an inter-operative manner.