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BRYAN PARNO WINS ACM AWARD FOR EXTENDING COMPUTER SECURITY PROTECTIONS IN THE DIGITAL AGE

Carnegie Mellon Doctoral Candidate Developed Techniques to Resolve Tension Between Security and Performance

NEW YORK, May 11, 2011 – Bryan Parno has won the 2010 Doctoral Dissertation Award http://awards.acm.org/doctoral_dissertation from ACM (the Association for Computing Machinery) for resolving the tension between adequate security protections and the features and performance that users expect in a digitized world. His dissertation, "Trust Extension as a Mechanism for Secure Code Execution on Commodity Computers," leverages the trust users have in one device to enable secure use of another device or service without sacrificing performance or features. Parno then extended the secure code execution on individual computers to computations performed on a remote host, like the cloud. Parno, who was nominated by Carnegie Mellon University, recently joined Microsoft Research's Security and Privacy Group. He will receive the Doctoral Dissertation Award and its $20,000 prize at the annual ACM Awards Banquet on June 4, in San Jose, CA. Financial sponsorship of the award is provided by Google Inc.

Honorable Mention for the 2010 ACM Doctoral Dissertation Award goes to Benjamin Snyder, nominated by the Massachusetts Institute of Technology, and carries a $10,000 prize, with financial sponsorship provided by Google.

Parno developed techniques to allow users to employ a small, trusted portable device to securely learn what code is executing on a local computer. He constructed an on-demand secure execution environment, which can perform security-sensitive tasks and handle private data in complete isolation from all other software and most hardware on the system. By extending trust in this environment to network elements in a secure, efficient manner, he was able to reexamine the design of network protocols and defenses, while non-security-sensitive software retained its abundance of features and the performance common to today's commodity computers.

Going a step further, Parno then designed, analyzed, and proved secure a protocol that allows users to outsource arbitrary computations to commodity computers run by untrusted remote parties who may

subject the computers to both software and hardware attacks. This approach guarantees that users can both verify the correct results of the specified computations on the inputs, and protect the secrecy of the inputs and outputs of the computations.

A graduate of Harvard University with a Computer Science major, Parno joined Microsoft Research, where he is pursuing a range of security topics as well as operating system design, distributed systems, and mobile computing.

Honorable Mention winner Benjamin Snyder's dissertation, "Unsupervised Multilingual Learning," explores the deep links among human languages, and how computers automatically perform language-oriented tasks, such as summarizing articles, and translating between languages. Using a class of probabilistic models that exploit these links as a form of naturally occurring supervision, Snyder combines natural cues from multiple languages to make the structure of each language more apparent.

A graduate of the University of Pennsylvania with a B.A. degree in Philosophy, Snyder is an Assistant Professor at the University of Wisconsin-Madison. His research includes natural language processing, computational linguistics, and cognitive science.

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