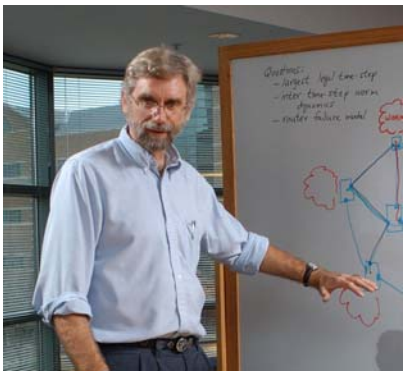
PRESS RELEASE

From the University of Illinois Information Trust Institute

Information Trust INSTITUTE

UIUC Professor David Nicol Receives Major Honor

The Association for Computing Machinery (ACM), which is one of the world's leading organizations of computing professionals, has bestowed a major new award on David M. Nicol, a professor in the Department of Electrical & Computer Engineering, the Information Trust Institute (ITI), and the Coordinated Science Laboratory at the University of Illinois at Urbana-Champaign (UIUC).



Award recipient David Nicol addresses his students at a recent meeting.

ACM's Special Interest Group on Simulation (SIGSIM) has just named Nicol as the 2007 recipient of their newly instituted Distinguished Contributions Award. Every year, SIGSIM will choose just one individual for this significant award, which honors contributions to the area of computer-based simulation. The nominating committee selected Prof. Nicol unanimously, noting that he had made "numerous and significant contributions" in virtually every area that the award is designed to recognize.

Nicol, who described himself as "surprised and honored" to be named the inaugural winner, has devoted most of his research effort over the last 25 years to finding better ways to develop and analyze simulation models. Simulation joins theory and experimentation as one of the three fundamental pillars of scientific endeavor. However, researchers who work with computer-based simulation models have long recognized that models can never include all the attributes of the things being modeled, since computers' time and memory limitations place limits on the size and complexity of models that can be solved. Those limitations have been a major impetus in the growth of supercomputers, whose large-scale parallel processing abilities have made it possible to simulate larger models with greater detail.

However, much of the modeling previously handled by supercomputers addressed problems in the physical sciences, such as physics, chemistry, and biology, which are guided by known physical laws developed over centuries of study. Nicol's work, in contrast, deals with the simulation of computer and communication systems. Such systems have important phenomena occurring at different levels of resolution, just as, for example, the science of physics handles phenomena that range from the level of subatomic particles up to the level of cosmology. However, because computing systems are much newer and less well-studied than systems in the physical sciences, the nature of the relationships among phenomena at different levels of resolution is far less well-understood. As a result, it has been difficult to coordinate the simulation of such systems on parallel computers.

Nicol's most recognized contribution has been the development of a method for synchronizing simulation solution that he mathematically proved would always be almost optimal. Furthermore, he has shown that his technique can be scaled, meaning that a researcher can increase the size of a problem being addressed and also the size of the computing platform being used, and continue to get good performance. Nicol has also applied the work to several problem domains. Over the last seven years he has focused on security work, evaluating performance aspects of security protocols to model the impact of malware (such as worms and viruses) on systems like the Internet, and developing tools so that practitioners can evaluate how strong their defenses are. He has also recently become the leader of the Critical Infrastructures & Homeland Defense research theme at the UI's Information Trust Institute.

Prof. Ravishankar K. Iyer, Director of the Coordinated Science Laboratory, was quick to offer praise for Nicol's

work and ACM's selection of him for the new award: "It is especially gratifying to see David win it in the first year." Prof. William H. Sanders, Director of the Information Trust Institute, added that "David's work has important ramifications for the trustworthiness of the computers and networks that society depends on. I'm honored to be his colleague."

About the Information Trust Institute (ITI)

The Information Trust Institute is a multidisciplinary cross-campus research unit housed in the College of Engineering at the University of Illinois at Urbana-Champaign. It is an international leader combining research and education with industrial outreach in trustworthy and secure information systems. ITI brings together over 90 faculty, many senior and graduate student researchers, and industry partners to conduct foundational and applied research to enable the creation of critical applications and cyber infrastructures. In doing so, ITI is creating computer systems, software, and networks that society can depend on to be trustworthy, that is, secure, dependable (reliable and available), correct, safe, private, and survivable. Instead of concentrating on narrow and focused technical solutions, ITI aims to create a new paradigm for designing trustworthy systems from the ground up and validating systems that are intended to be trustworthy. www.iti.uiuc.edu

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