



NORTHWESTERN INSTITUTE
ON COMPLEX SYSTEMS (NICO)

CHAMBERS HALL
600 FOSTER STREET
EVANSTON, IL 60208-4057
T . 847 491 2527
F . 847 556 1280



NORTHWESTERN
UNIVERSITY

**Northwestern Institute on Complex Systems
invites you to its**

Weekly Seminar

Speaker: Dr. William Rand
Title: Advancing the State of the Art in Agent-Based Modeling

When: Wednesday, October 25, 2006
Where: Chambers Hall, 600 Foster Street, Lower Classroom Level
Time: 12:00 – 1:00

NICO Coffee Hour will follow for questions, networking, and collaboration

Abstract

Agent-based modeling (ABM) is still a nascent field, but already it holds promise for helping researchers, students, and the public understand complex systems in new and innovative ways. I will begin with an introduction to ABM and a comparison to traditional modeling techniques. After that I will examine recent areas of research within the methodology of ABM. For instance, recently my colleagues and I have been developing new methods which allow us to incorporate richer conceptions of pattern within ABM. As we develop a new framework of communication we are working to integrate social network analysis (SNA) and geographic information systems (GIS) within the overall ABM concept, and by doing so we are creating a common language for these disparate fields. Of course as one builds more and more detailed ABMs it becomes important to make sure the models are accurate. Computational modeling requires a reassessment of standard scientific methodology surrounding replication, verification, and validation, especially with respect to ABM. We have taken advantage of a recent replication of Robert Axelrod's Ethnocentrism model to further our research into improving the accuracy of ABM. Finally, most traditional agent-based modeling has focused on virtual agents and their interactions. Recently we have been working on incorporating robotic and human agents into these modeling efforts. This requires the creation of not only new techniques but also new conceptions to begin the discussion of these techniques. I will finish with a demonstration of an early prototype that incorporates human and robotic agents.

Also posted on Plan-It Purple