

**Automatic Formation and Analysis of  
Multiagent Virtual Organization**

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Olsen 311

Refreshments at 2:30, Talk from 3:00-4:00

Virtual organization (VO) refers to the temporary teaming of enterprises. By sharing physical, human and knowledge resources via information technologies, a virtual organization enables member enterprises to share skills, costs, access to one another's markets and, at the same time decrease the risk of investments. To realize this new generation of business model, the ability to form, operate, and dissolve of virtual enterprise is of most pivotal importance. The presentation describes our experience gained by implementing a multi-agent system that simulates an artificial marketplace, for which we have derived mechanisms for the decision-making process in various stages of a virtual organization. We will present a negotiation protocol and a bid selection algorithm for agents to form a virtual organization. We have adopted the MQ framework to model the agent's reasoning process when it is involved in more than one organization. In order to better understand the organizational problem, we adapted a statistical model that predicts the expected rewards of individual agents and the performance of the virtual organization. The comparison and analysis of the simulation results and the model predictions are also presented.

*Bio:* Xiaoqin Zhang received her B.S. degree in computer science from the University of Science & Technology of China in 1995, and received her Ph.D. degree in computer science from University of Massachusetts at Amherst in 2002. She is currently an assistant professor in Computer and Information Science Department of University of Massachusetts at Dartmouth. She has been working on sophisticated negotiation techniques in multi-agent systems. Her research interests also include intelligent agent architecture designing, agent control and reasoning under uncertainty, learning in multi-agent systems, information gathering, e-commerce, distributed systems and artificial intelligence.