Hilary Term 2008

CABDyN SEMINAR SERIES
Saïd Business School, University of Oxford

Convenors:
Felix Reed-Tsochas, *James Martin Institute*, *Saïd Business School*
Jukka-Pekka Onnela, *Physics Department & Saïd Business School*

Our meetings intend to provide a forum for rigorous research (in a broad range of disciplines) focusing on complex adaptive systems, using methods and techniques such as agent-based modelling and complex network analysis. Since potential areas of application for such approaches can be located across the social, natural and engineering sciences, our aim is to involve participants from a wide range of departments in Oxford. We welcome talks which focus on particular areas of application and associated technical issues, but also encourage contributions which address more fundamental conceptual or mathematical problems. The CABDyN Seminar Series is one of the activities of the CABDyN Research Cluster (http://sbs-xnet.sbs.ox.ac.uk/complexity/).

Tuesday 26th February, 12.30 – 2.00 pm

Seminar Room A, Saïd Business School

Serguei Saavedra
Department of Engineering Science
University of Oxford

‘Patterns of cooperation in ecological and organizational networks’

ABSTRACT

Organizational ecology has adapted biological models that focus on constructs such as niche width, resource partitioning, or specialization and generalization to explain the birth and death rates of organizational populations. However, by focusing on population level constructs, these models have yet to explore the similarities in ecological and social behavior that can occur through patterns of direct actor-to-actor cooperative interaction. Network studies have been applied to understand cooperative behavior at different levels of organization ranging from groups of animals to human society. Yet the question remains: how individual and environmental conditions give rise to the large-scale cooperative organization observed in real-world ecological and organizational networks? Here, building on previous food-web models, we propose a bipartite cooperative model based on simple interaction rules, which is able to accurately replicate important patterns of cooperation in manufacturing and pollination networks. The discovery of the surprising correspondence between organizational and ecological cooperative interactions may open up new directions for exploring adaptive mechanisms in ecological and socio-economic systems.

Sandwiches and drinks will be provided

For further information contact info.cabdyn@sbs.ox.ac.uk
Seminar webpage: http://sbs-xnet.sbs.ox.ac.uk/complexity/complexity_seminars.asp