BERNARD SARCHET GRADUATE SEMINAR SERIES

On Ants, Tornadoes and Healthcare Costs

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Abstract: Ant colonies, tracking tornadoes using next generation radars and healthcare costs all are systemic or aggregate outputs of ensembles of distributed decision-makers. Coordinating and aggregating actions of multiple decision-makers improve the overall system performance poses several challenges. This seminar focuses on two fundamental issues related to such systems, namely distributed coordination and designing incentives.

Distributed coordination is framed in the context of resource allocation in sensor networks for tracking targets as a multi-linked bargaining market. We discuss a set of bargaining strategies and present a distributed fixed-point method that allows efficient (real-time) computation of the equilibrium solution. The discussion on incentives is presented in the context of the healthcare system where multiple decision-makers often have conflicting objectives leading to additional costs. We present a multi-lateral contract mechanism between insurers, providers and consumers in the healthcare system that induces preventive actions and reduces overall systemic costs.

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10-11 a.m.

Computer Science, Room 209

Presented by:

Engineering Management and Systems Engineering

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