

IST Seminar Series Presents:



How AI Agents Form Organizations and Why They Fail

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Monday, Feb 23, 2026 from 1:30PM-2:30PM (Central Time)

Location: BH2 301B

<https://teams.microsoft.com/meet/21125324717009?p=59Kn0pJdVzysfK4eJL>

Meeting ID: 211 253 247 170 09

Passcode: ae3W8cK3

Abstract: As Artificial Intelligence shifts from standalone Large Language Models (LLMs) to goal-oriented agents, a new frontier of “Algorithmic Organizations” is emerging. This research investigates whether decentralized agents behave like organizational units to coordinate with limited information and resources. The talk presents two primary research studies:

Research 1: Multi-Agent LLM Systems as Organizational Structures This study examines how different communication topologies, such as Star, Complete, and Modular, affect system robustness under varying organizational demands. Using a project execution task across multiple AI-managed units, it demonstrates that while agents can coordinate as “responsible employees,” performance often undergoes a cascading collapse as task difficulty increases and uncertainty enters the system. The findings indicate that organizational structure significantly influences robustness, with different topologies exhibiting varying levels of resilience to overload.

Research 2: The second study extended the first research by introducing a resource dilemma model to test the fundamental tension between individual and collective rationality. In this framework, agents must choose between maximizing private gain and contributing to a shared team bonus across iterative rounds. By removing direct communication and providing only historical payoff feedback, this work isolates the emergent strategic behavior of AI agents. We analyze the “Death Spiral” of defection that occurs when collective trust breaks down, identifying the critical thresholds where individual greed overrides organizational optimization.

Biosketch: Shun Cao is an Assistant Professor in the Department of Information Science Technology at the University of Houston. His research examines how AI, machine learning, and computational modeling can be used to understand and improve decision-making, coordination, and resilience in complex organizational and socio-technical systems. He develops multi-agent and network models to study human–AI collaboration, infrastructure systems, and adaptive organizational behavior.