



## Collective Cognition in Ant Societies

Feb. 28<sup>th</sup> (Tuesday): 2-3pm ET

**Stephen Pratt**



Social insects are paradigms of decentralized organization. Complex colony traits emerge from the interactions of many leaderless workers, each applying appropriate decision rules to limited local information. In this talk, I will describe efforts to understand this process through a combination of experimentation and computational analysis. This work uses nest site choice by colonies of rock ants acting as a model system for collective intelligence. Sharing the burden of information processing contributes to enhanced colony performance, or “wisdom of crowds”, but I will show that it can sometimes instead lead to paradoxically worse performance. Finally, I will describe how information theory can shed new light on the distinctive communication behavior that allows colony members to share information about nest sites and other important resources.

Stephen Pratt studies the emergence of complex social behavior in leaderless, decentralized groups, particularly social insect colonies. Inspired by the analogy between individual organisms and colonial “superorganisms,” he applies many ideas from psychology and economics to understand group cognition. He also works with engineers to translate lessons from social animals to robot swarms and other human-designed systems, and to develop innovative tools for the analysis of behavior. He received his PhD at Cornell University under the supervision of Thomas D. Seeley and did postdoctoral work at MIT, Princeton, and the University of Bath. He is currently a professor in the School of Life Sciences at Arizona State University, where he has been on the faculty since 2006.

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