



## ME Department Seminar

# Designing Engineering Design Teams: Integrating Cognitive and Computational Models of Team Problem Solving



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#### Abstract

Teams are assumed critical to engineering problem solving in general, and design in particular. But are they? This talk will first look at cognitive properties of humans solving problems as individuals and in teams. Based on those properties an agent-based algorithm is created that emulates human team problem solving strategies. This algorithm then allows for much faster problem solving than with humans, and enables a computational approach to designing human teams with optimal properties. In some cases the best team configuration is...surprising. The talk will also look at answers for why teams behave the way they do, and why the best team design is not always the most obvious one.

#### Bio

Jonathan Cagan is the George Tallman and Florence Barrett Ladd Professor in Engineering, in the Department of Mechanical Engineering at Carnegie Mellon University, with an appointment in the School of Design. He is an expert in product development and design methods for early stage product development.

His research focuses on design methods, theory and practice, including computational synthesis, cognitive-based design and interdisciplinary product development. Cagan serves as the Associate Dean for Strategic Initiatives for Carnegie Mellon's College of Engineering. He also co-founded and co-directs the Integrated Innovation Institute, a joint partnership between engineering, design, and business.