Seminar Speaker: Dr. David Bergman, University of Connecticut
Industrial Engineering Distinguished Researcher Seminar Series

**Time and Location:** Friday, January 13th from 1:25 to 2:15, Freeman Hall Auditorium

**Title:** Decision Diagrams for Optimization

**Abstract:**

In recent years, there has been a proliferation of research on innovative uses of decision diagrams (DDs) for optimization. DDs are a graphical representation of Boolean functions, and were originally introduced for circuit design, simulation, and formal verification. A more recent perspective associates DDs with discrete optimization, where a DD is used to represent a set of solutions to a problem and as an engine for generating objective function bounds. This viewpoint has led to the development of state-of-the-art algorithms for a variety of real-world optimization problems, including, for example, product assortment in retail stores, employee assignment in business process workflows, and portfolio optimization.

In this talk, a general overview of recent trends in the application of DDs within the context of discrete optimization will be presented. The focus will be on nonlinear discrete optimization problems, but other topics such as multiobjective optimization and scheduling will also be discussed.

**Bio:**

David Bergman completed his Ph.D. in 2013 from Carnegie Mellon University in Algorithms, Combinatorics, and Optimization, for which his thesis, titled New Techniques for Discrete Optimization, was awarded the 2014 Association for Constraint Programming Doctoral Research Award. He is an assistant professor of Operations and Information Management at the University of Connecticut, and since August 2016 has worked as a Data Science Specialist at McKinsey & Company. He has published 15 articles in peer reviewed journals and conferences, and in 2016 published a book, Decision Diagrams for Optimization. He is an editor for the Constraints journal and has served on several program committees for top international conferences in artificial intelligence and operations research. David has done analytics consulting for a variety of companies, including Mitsubishi Electric, Westchester Management, Additech, and the Jacksonville Jaguars.