

# IMSE Department PRESENTATION

## Recent Advances in Solving Multi-Objective Integer Programs

### Biography



Hadi Charkhgard is a postdoctoral researcher in the School of Industrial and Systems Engineering at Georgia Institute of Technology. His primary area of research is multi objective optimization, in particular multi-objective mixed integer programming and its applications. From the theoretical and numerical results of his research, he has published eight papers in highly-ranked journals in operations research. Hadi received his master's degree in Industrial Engineering from Sharif University of Technology (in Iran), and a Ph.D. in Operations Research from the University of Newcastle (in Australia). He was awarded highly competitive scholarships, i.e., an International Postgraduate Research Scholarship and an Australian Postgraduate Award, from the Australian government to support his Ph.D. study.

### Abstract

Multi-objective optimization is of interest in operations research, economics, psychology, computer science, mathematics and engineering, not least because many real-world problems involve multiple objectives. However, multi-objective optimization, especially involving integer decision variables, has, to date, received far less attention than single-objective optimization, even though it poses many interesting theoretical as well as algorithmic challenges. This talk will focus on (exact) criterion space search algorithms, i.e., methods that search in the space of objective function values and determine the complete efficient frontier of multi-objective integer programs. These algorithms are able to exploit, and take full advantage of, the tremendous power and flexibility of modern commercial (single-objective) integer programming solvers. Two- and three-objective integer and mixed integer programs will be discussed, and the results of computational experiments on benchmark instances will demonstrate the effectiveness of the algorithms presented.

**CMC 147**

**01:00 pm-02:00 pm**

**Monday, March 7, 2016**

