

University of Southern California

---

**DANIEL J. EPSTEIN DEPARTMENT OF  
INDUSTRIAL AND SYSTEMS ENGINEERING**

---

**EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR**

***Revisiting Fortification Algorithms for  
Facility Interdiction Problems***

**Dr. J. Cole Smith**

**Professor & Interim Chair of Industrial and Systems Engineering  
Interim Director of the UF Informatics Institute  
University of Florida**

**ABSTRACT**

Interdiction and fortification studies of  $p$ -median facility location problems have received a substantial attention in the past decade. These problems can be seen as three-stage games in which the network owner (which we call the defender) fortifies facility locations in a first stage, an interdictor disables a subset of unfortified facilities in a second stage, and the defender assigns demand points to facilities that were not attacked in a third stage. This talk discusses an alternative approach to those in the literature, which is capable of handling a broad class of these fortification problems, including those arising under  $p$ -median and  $p$ -center objectives. Additionally, we examine problems in which there exist constraints restricting the number of demand points that can be assigned to each facility. We also illustrate the relationship between our approach and previously derived ad-hoc strategies for solving special cases of these problems. This talk discusses the computational effectiveness of our proposed strategies, and discusses classes of problems that warrant future research.

**TUESDAY, MARCH 4, 2014  
VON KLEINSMID CENTER (VKC) ROOM 100  
3:30 – 4:50 PM**

## **SPEAKER BIO**

Dr. J. Cole Smith is a professor of Industrial and Systems Engineering (ISE) at the University of Florida, where he serves as the Interim Chair of ISE and the Interim Director of the UF Informatics Institute. His funding has been supported by the NSF, DARPA, AFOSR, and the ONR, and he has spent one summer as a distinguished visiting professor in the National Security Agency's summer program in operations research technology. His research regards mathematical optimization models and algorithms, especially those arising in combinatorial optimization. Dr. Smith has had the pleasure of collaborating with colleagues across many different disciplines, including Mathematics, Ecology, Psychology, Computer Science, and Biomedical Engineering. His awards include the Young Investigator Award from the ONR, the Hamid K. Elden Outstanding Young Industrial Engineer in Education award, the Operations Research Division Teaching Award, and the best paper award from IIE Transactions in 2007.