MULTI-OBJECTIVE LOCATION MODELING AND GENETIC ALGORITHMS

Thursday, February 21, 2019   12:00 - 1:15 PM (US Arizona)
College Avenue Commons (CAVC) Room 559 (Parking)

Transportation Seminar

Dr. Mark S. Daskin
Clyde W. Johnson Professor
Industrial and Operations Engineering
University of Michigan, Ann Arbor

About the Talk

Most location problems are inherently multi-objective, though much of the literature focuses on single-objective models. This talk will emphasize the need for multi-objective modeling in facility location problem contexts. It will also highlight the value of using genetic algorithms to approximate the tradeoff curve in multi-objective models. The talk will focus on the tradeoff between minimizing the demand-weighted average distance between demand nodes and the nearest open facility and minimizing the range of demand assigned to the facilities. The problem will be formulated, additional tightening constraints will be outlined, and exact computational results will be given for small problem instances. To solve larger problems, a genetic algorithm will be outlined and computational results for that model will be presented for instances with up to 880 demand and candidate sites.

About the Speaker

Mark S. Daskin is the immediate past Department Chair of the Industrial and Operations Engineering Department at the University of Michigan. He holds the Clyde W. Johnson Collegiate Professorship. Prior to joining the faculty at Michigan in 2010, Daskin was on the faculty at Northwestern University (for 30 years) and the University of Texas (for a year and a half). He received his Ph.D. from the Civil Engineering Department at M.I.T. in 1978. He also holds a B.S.C.E. degree from that department and a Certificate of Post-Graduate Study in Engineering from the University of Cambridge in England. His research focuses on the application and development of operations research techniques for the analysis of health care problems, as well as transportation, supply chain, and manufacturing problems. He is the author of over 80 refereed papers and of two books: Network and Discrete Location: Models, Algorithms and Applications (John Wiley, 1995; second edition, 2013) and Service Science (John Wiley, 2010), winner of the IIE Joint Publishers Book of the Year Award in 2011. Daskin was elected to the U.S. National Academy of Engineering in 2017. He is a Fellow of both INFORMS and IIE and has received the David F. Baker Distinguished Research Award, the Technical Innovation Award and the Fred C. Crane Award for Distinguished Service from IIE as well as the Kimball Medal for service to the society and the profession from INFORMS. He received the Lifetime Achievement Award in Location Analysis from the Section on Location Analysis of INFORMS in 2014. He is a past editor-in-chief of both IIE Transaction and Transportation Science. In 2006, he was the president of INFORMS. He served as the chair of the Department of Industrial Engineering and Management Sciences at Northwestern University from 1995-2001.

This seminar is webcast live to a worldwide audience by ASU Engineering – Global Outreach and Extended Education (GOEE). To access the live webcast and archive of previous seminar recordings, please visit: http://links.asu.edu/ASU-Transportation-Seminar

Light refreshments will be served. Event is open to the public.