USC Center for Artificial Intelligence in Society presents...

Dr. David Morton

Using Optimization to Thwart Viruses

We describe the use of data-driven optimization models to inform resource allocation to help detect or mitigate the spread of a virus. One set of models guide preparation for, and response to, an influenza pandemic. In particular, we optimize: the mix of central and regional stockpiles of ventilators, accounting for stochastic peak-week demand; the spatial allocation of antivirals, considering under-insured populations and hard-to-reach locations; and, the spatial allocation of multiple types of vaccines with differing suitability for each prioritized target population. In addition, we discuss rapidly detecting the spread of a cell-phone virus on a contact network of handsets.

November 16th, 4-5 pm

Mudd Hall 101

This lecture satisfies requirements for CSCI 591: Research Colloquium.

David Morton is the David A. and Karen Richards Sachs Professor and Chair of Industrial Engineering and Management Sciences at Northwestern University. His research interests include stochastic and large-scale optimization with applications in security, public health, and energy systems. Prior to joining Northwestern, he was on the faculty at the University of Texas at Austin, worked as a Fulbright Research Scholar at Charles University in Prague, and was a National Research Council Postdoctoral Fellow in the Operations Research Department at the Naval Postgraduate School.