David J. Eckman
Assistant Professor
Department of ISEN
TAMU, College Station, TX
Date: Friday, Oct. 27, 2023
Time: 1:00 -- 1:50 pm
Location: Melcher 180

All-Purpose Screening Procedures for Ranking and Selection

Abstract: We introduce a framework for designing screening procedures for problems featuring a finite set of simulated systems, a.k.a., ranking-and-selection problems. The procedures guarantee to return either all acceptable systems, or each acceptable system, with high probability, where the definition of acceptability is flexible and can include feasibility with respect to one or more constraints and optimality with respect to one or more objectives. Specifically, the procedures construct separate confidence regions for each system's performance and search within these regions for a configuration of performances for which a given system is acceptable. By implementing the procedures within a parallel computing environment, their running time can be reduced without compromising screening power. We demonstrate the effectiveness and efficiency of the procedures through numerical experiments.

Biography: David J. Eckman is an Assistant Professor in the Wm Michael Barnes '64 Department of Industrial and Systems Engineering at Texas A&M University. He received a Ph.D. in Operations Research from Cornell University and was a postdoctoral scholar in the Department of Industrial Engineering and Management Sciences at Northwestern University. His research interests deal with optimization and output analysis for stochastic simulation models. He is a co-creator of SimOpt, a testbed of simulation-optimization problems and solvers, and is a council member of the INFORMS Simulation Society.