NSF Workshop on Simulation Optimization

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Research Topics of Interest

- Optimization Over Multiple Performance Measures
- Optimization Over a Dynamically Changing Performance Measure
- Optimization Heuristics Involving Simulation
Multiple Performance Measures

- Focus: Multiple Objective Ranking and Selection (MORS) problem

- Approaches:
  - Multiple Attribute Utility Theory (Butler et al., 2001)
  - Multi-objective Computing Budget Allocation using the concept of Pareto optimality (Lee et al., 2004, 2010, Lee et al., 2007)
  - Data Envelopment Analysis (Chen et al., 2010)
  - Others?

- What are the pros and cons of each approach? How do they perform?
Dynamically Changing Performance Measure

- **Focus**: Ranking and Selection with a performance measure that is a function of some other variable such as time.
- **My current work**: Morrice et al. (2008, 2009)
- **What related work is being done on this topic?** I am familiar with Frazier et al. (2009)
Optimization Heuristics

- What is the state of the art for using optimization heuristics that involve simulation (e.g., Tabu Search, Simulated Annealing, other)?
- What opportunities are there to advance existing methods or develop new methods?
- What are the large-scale real examples to which these methods have been applied? We have a ready application to the problem described in Loveland et al. (2007) and Monkman et al. (2008).
References