Research Interest

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Research Interest 1: Simulation Optimization

- Ranking & Selection
  - Select the best (single objective)
  - Select a subset (single objective)
  - Select a Pareto Set (multi-objective)
  - Select the best feasible (constraint Optimization)

- Integration of Search with Ranking & Selection

- Other Types of Resource Allocation
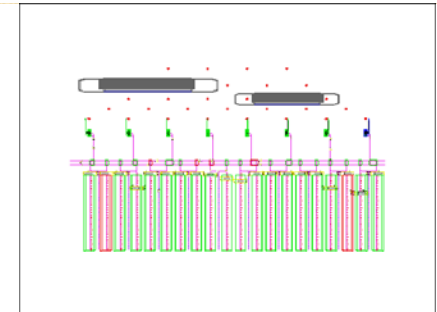 - Budget Allocation for Monte-Carlo Data Envelop Analysis (DEA)

Research Interest 1I: Simulation Optimization

Empty Container Reposition
Fluctuating Bunker Prices

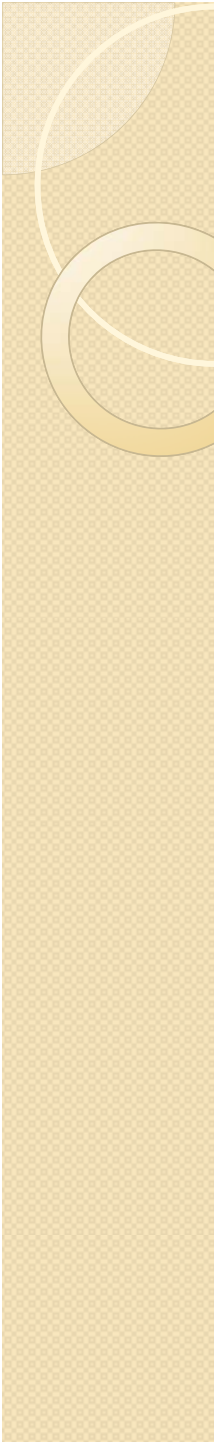Port Layout Design
Yard Management
Vehicle Dispatching

Ocean Liner Operation

Port Operation

Maritime Logistics

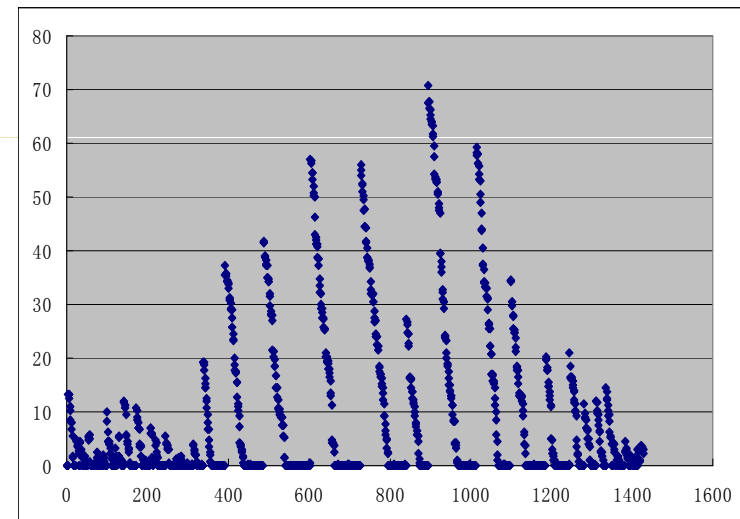Port Competition

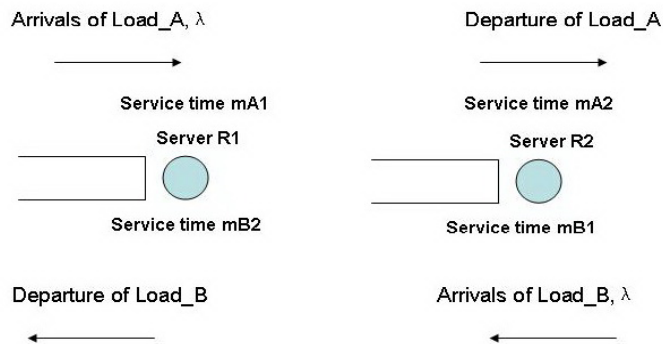Port Competitive Study
Port Benchmarking

Research Question 1 Optimization with Time-consuming Simulation

- A single replication of Simulation can be very time-consuming
  - E.g. one replication for port simulation can take hours to run

- Simulation Optimization might not be easy to carry out.

- Using different types of simulation models (detail or surrogate models) to perform optimization

Research Question 2: Warm-up Analysis

- Virtual bottleneck Problem

- Waiting Time Plot

- Need new definition for steady state
- How do conduct warm-up analysis?