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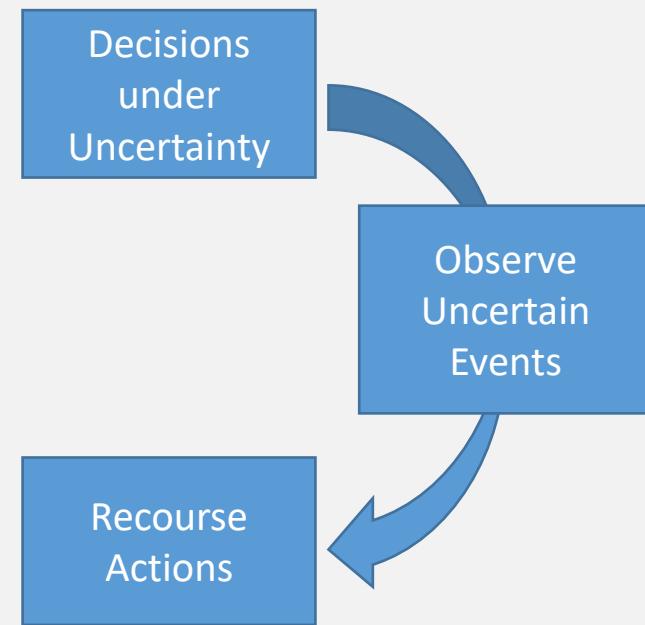
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Keywords:
Stochastic Programming
Mixed Integer Programming
Production Planning
Location and Transportation

Advanced Optimization Methods and Applications

Optimization under Uncertainty



- Two-stage and multi-stage stochastic programming models
- Decomposition methods
- Branch-and-cut method
- Risk measures



Application problems:

- Car-sharing systems
- Disaster preparedness
- Facility location
- Production planning



Optimization of Shared Mobility Systems



- Location and fleet sizing problems in car-sharing systems
- Rebalancing and routing problems in bike/scooter sharing systems
- Maintenance related problems in shared mobility systems
- Network optimization problems

Production Planning

Lot sizing problem and its variations

- Carbon emission constraints
- Nonlinear cost functions
- Uncertainty in problem parameters

Solution Methods:

- Branch-and-cut
- Dynamic programming

