

NEW TRENDS IN SIMULATION AND DECISION MAKING UNDER UNCERTAINTY

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ABSTRACT

Stochastic simulation comprises a powerful set of tools for decision-making under uncertainty. These tools are being rapidly absorbed in a wide range of data analytics applications. But as new technologies disseminate and open the door for widespread applicability of state-of-the-art solutions, also new challenges and opportunities arise for simulation. For example, application areas such as energy systems, finance, healthcare, pricing, sustainability, and transportation, provide instances in which modeling, simulation, and data analytics lie at key decision-making problems. Many of these problems share common characteristics. They are large scale, in many cases, they are ill-posed or poorly specified, they demand robust solutions, their natural formulation is computationally hard, and in many cases, they require interpretable solutions because a human is ultimately responsible for the impactful consequences of a policy. This talk will expose some of these challenges and some methodological ideas that are currently being developed to address these challenges.

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