The Department of Industrial Engineering at UH is honored to host the INFORMS Guest Lecture

Compromise Decisions for Two-Stage Stochastic LPs

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Suvrajeet Sen is Professor at the Daniel J. Epstein Department of Industrial and Systems Engineering at the University of Southern California. Prior to joining USC, he was a Professor at Ohio State University (2006-2012), and University of Arizona (1982-2006). He has also served as the Program Director of OR, as well as Service Enterprise Systems at the National Science Foundation. Professor Sen's research is devoted to many categories of optimization models, and he has published over 120 papers, with the vast majority of them dealing with models, algorithms and applications of Stochastic Programming problems. He has served on several editorial boards, including *Operations Research* as Area Editor for Optimization and as Associate Editor for *INFORMS J. Computing*, *INFORMS J. Optimization, J. Telecommunications Systems*, *Math. Programming B, Operations Research, SIAM J. on Optimization*. He also serves as an Advisory Editor for several newer journals. Professor Sen was instrumental in founding the INFORMS Optimization Society in 1995, served as its Chair (2015-16), and led the process culminating in the creation of the new journal, *INFORMS J. Optimization*. He and his colleagues were jointly recognized by the INFORMS Computing Society for their "seminal work" on Stochastic Mixed-Integer Programming in 2015. Professor Sen is a Fellow of INFORMS, and has been recognized at all his alma maters as a distinguished alumnus. Except for his years at NSF, he has received continuous extramural research funding from NSF for a stretch of years lasting over 25 years. His current work is funded by AFOSR, ONR, and DOE.

Abstract: The concept of replications is a commonly used concept for variance reduction in simulation studies where one often assumes that there are only a finite (and not too large) number of decisions from which a decision must be chosen in the face of uncertainty. The same kinds of issues arise in Stochastic Programming, although the collection of alternative decisions can be very large (uncountably many in Stochastic LPs). In this lecture we will discuss the notion of Compromise Decisions which allow replications even when the number of possible decisions is very extremely large. These compromise decisions are designed to exploit parallel processing, and we will illustrate their effectiveness on some of the more challenging instances in the literature. If time permits, we will also summarize similar results for multi-stage SLPs as well as two stage SIPs with binary decision variables.

Time: Friday, November, 10, 2023. 1:00-1:50PM   **Location:** Melcher Hall 180, UH Main Campus