

Abstract: Ambiguous chance constrained optimization program (ACCP) is a novel approach for producing “robust” decisions under data uncertainty. In ambiguous chance constrained programs the distributions of the random parameters in the problem are themselves uncertain. We assume that the uncertainty set of the distributions is a “ball” centered around a measure Q . The ACCP is approximated by a robust sampled problem where each sample is drawn according to the central measure Q . Our main contribution is to show that the robust sampled problem is a good approximation for the ambiguous chance constrained problem with a high probability and it can be solved efficiently, both in theory and in practice. We will also discuss an extension of this theory to the two-period setting. This is a joint work with Garud Iyengar.

BIO Emre Erdogan is a Ph.D. candidate in the Industrial Engineering and Operations Research Department at Columbia University. Mr. Erdogan’s research interests include optimization under data uncertainty, stochastic programming, decision and risk analysis, financial engineering, and supply chain management. His paper on ambiguous chance constrained programs was awarded the First Prize in the George E. Nicholson paper competition, organized by the Institute for Operations Research and Management Sciences (INFORMS). He has also worked at the IBM T.J. Watson Research Center in Hawthorne, New York.