SEMİNER

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Yer: Endüstri Mühendisliği Bölümü Konferans Salonu

QUEUEING AND FLUID NETWORKS WITH PARAMETER UNCERTAINTY

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The makespan of a fluid network is defined as the time to drain the system, when there is fluid present in the buffers initially. In this presentation, our main focus is minimizing makespan when the problem parameters are uncertain. Assuming distributional information about parameters is available, the decision maker's goal is to optimally allocate the capacity in order to minimize the expected value of the makespan. We consider two decision making schemes. In the first scheme, the controller sets the allocations before observing the parameters. After the initial allocations are set, they cannot be changed. In the second scheme, the controller is allowed a recourse action after a data collection process. It is shown that both schemes differ considerably from the deterministic version of the problem. We formulate both schemes as stochastic programs. The first scheme is easier to solve since the resulting model is convex. Unfortunately, under the second decision scheme, the objective function is non-convex. We develop a branch-and-bound methodology to solve the resulting stochastic non-convex program.

Burak Büke received his BSc degree in Industrial Engineering from Bogazici University at Istanbul. He then moved to the United States and completed his MS and PhD degrees in Operations Research at The University of Texas at Austin under the supervision of John J. Hasenbein and David P. Morton. After obtaining his PhD in 2007, he held visiting faculty positions in Industrial Engineering Departments of The Ohio State University and Arizona State University. In 2009, he joined the School of Mathematics at the University of Edinburgh as a Lecturer (assistant professor). His research interests include stochastic programming, stochastic processes with an emphasis on queueing networks and revenue management.