EPSTEIN INSTITUTE SEMINAR ▪ ISE 651

Incentive Compatible Mechanisms for the Secretary Problem

ABSTRACT – In the classical secretary problem, an employer sequentially interviews *n* randomly ordered rankable candidates; following each interview, the employer must immediately decide whether to hire the candidate. The celebrated elegant solution that maximizes the probability of hiring the best candidate calls for ignoring about one third of the first interviewed candidates and then selecting the best candidate so far. Recognizing that the early candidates have no chance to be selected, and thus have no incentive to be interviewed, Buchbinder at al. introduced an LP based selection mechanism that guarantees that all the candidates have an equal probability of being selected.

In this talk we introduce a direct formulation of the incentive problem as a Markov Decision Problem. This approach provides a clear insight into the LP formulation, significantly simplifies the proofs of their validity, and provides a general framework for other incentive mechanisms. In particular, we present and analyze an incentive mechanism that maximizes the expected rank of the selected candidate. In addition, we introduce a couple of novel mechanisms that allow the candidates to set deadlines for the hiring offer. We show that the dominating strategies of all the candidates and the employer in these cases lead to selecting one of the *earliest* interviewees, and that the probability of hiring the best candidate is higher than that of the classical problem,though both converge (as *n* tends to ∞) to the same value.

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SPEAKER BIO – Dr. Ilan Adler is a professor in the Operations Research and Industrial Engineering department at the University of California in Berkeley, which he joined in 1970. Professor Adler holds a B.A in Economics and Statistics from the Hebrew University in Israel (1966), a M.Sc. in Operations Research from the Technion in Israel (1967), and a Ph.D. in Operations Research from Stanford (1970). His main research interests are in the areas of Mathematical Programming, Game Theory, and Applied Probability.

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3:30PM – 4:50PM
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