Title	Postgraduate program applications: simultaneous search, sequential outcomes, and reservation fees
Abstract	This paper studies a simultaneous-search problem in which a player observes the outcomes sequentially, and must pay reservation fees to maintain eligibility for recalling the earlier offers. We use postgraduate program applications to illustrate the key ingredients of this family of problems. We develop a parsimonious model with two categories of schools: reach schools, which the player feels very happy upon joining, but the chance of getting into one is low; and safety schools, which are a safer choice but not as exciting. The player first decides on the application portfolio, and then the outcomes from the schools applied to arrive randomly over time. We start with the extreme case wherein the safety schools always admit the player. We show that it suffices to focus on the last safety school, which allows us to conveniently represent the player's value function by a product form of the probability of entering the last safety period and the expected payoff from then on. We show that the player's payoff after applications is increasing and discrete concave in both the numbers of reach and safety schools. We also develop a recursive dynamic programming algorithm when admissions to safety schools are no longer guaranteed. We demonstrate instances in which the player applies to more safety schools when either the reservation fee gets higher or the admission probability drops lower, and articulate how these arise from the portfolio optimization consideration. This has strong managerial implications for service providers in devising their reservation fees and admission rates, especially for institutions that are not universally favored by prospective applicants. Keywords: simultaneous search, dynamic programming, stochastic models, reservation fees
About the Speaker	Ying-Ju Chen is the Crown Worldwide Professor of Business and a Chair Professor at HKUST. Prior to the current position, he was a faculty in the Department of IEOR at UC Berkeley. He obtained a PhD degree in Operations Management from Stern School of Business at New York University in 2007, and he also holds master's and bachelor's degrees of Electrical Engineering from National Taiwan University. He is a recipient of Franklin Prize for Teaching Excellence (MBA non-required/MSc, highest honor at HKUST Business School, 2 winners per year), NYU teaching excellence award, Most Influential Service Operations Paper Award in Production and Operations Management, Harold W. Kuhn Award of Naval Research Logistics, Second place of INFORMS Junior Faculty Interest Group (JFIG) paper competition, Higher Education Outstanding Scientific Research Output Award (Social Science, third prize), Best paper award of CSAMSE (third prize), the Harold MacDowell Award from Stern School, Meritorious Service Awards from Management Science and Manufacturing & Service Operations Management, and other awards and fellowships during his academic journey. He is ranked No. 2 among researchers world-wide by weighted corrected publication rate in Operations Management according to an article in Decision Sciences (2021). His editorial appointments include a department/deputy editor for NRL and Service Science, and a senior/associate editor for OR, M&SOM, and POM journals. His current research interests lie in network economics, socially responsible operations, operations-

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