Quantitative Methods Seminar

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"Trustworthy Reinforcement Learning for Online Decision Making"

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Abstract: **Machine learning technologies have made significant progress in developing predictive models of consumers' preferences and behavior. For these techniques to deliver the next level of impact, predictive models must be incorporated into decision and market design problems. In online decision making, the decision-maker needs to make a decision at each time point, based on the current contextual information as well as historical interactions with the environment. A central question considered in this problem is how rational agents should act individually when they have to learn about the consequences of their actions in the uncertain environment? The recent developments in reinforcement learning have opened the door to answer this central question. In this talk, I will discuss trustworthy reinforcement learning algorithms for two online decision making examples: dynamic pricing and dynamic assortment selection, and tackle different aspects of the trustworthy issues in each problem.**

Short bio: **Will Wei Sun is currently an assistant professor of Quantitative Methods and Statistics at Purdue University. Before that, he was an assistant professor at University of Miami Business School and a research scientist in the advertising science team at Yahoo Labs. Dr. Sun's research focuses on reinforcement learning and tensor learning. His research was partially supported by grants from NSF, Office of Naval Research and Ross-Lynn Research Scholar Fund.**