

# Industrial & Systems Engineering Seminar



**Wednesday, October 13, 2010**

3:15 PM – Refreshments before the seminar

3:30 PM – Graduate Seminar

**Mechanical Engineering Room 4125 A & B**

## *A New Approach to Modeling Choice*

*by*

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A central push in operations models over the last decade has been the incorporation of models of customer choice. Real world implementations of many of these models face the formidable (and very basic) stumbling block of simply selecting the ‘right’ model of choice to use. Thus motivated, we visit the following problem: For a ‘generic’ model of consumer choice (namely, distributions over preference lists) and a limited amount of data on how consumers actually make decisions (such as marginal information about these distributions), how may one predict revenues from offering a particular assortment of choices? We present a non-parametric framework to answer such questions and design a number of tractable algorithms from a data and computational standpoint for the same. Our approach represents a novel and substantial departure from the typical attack on such basic questions. This departure is necessitated by problem scale and data availability.

In addition to laying out the basic theory, the practical value of the work will be demonstrated with a data-driven study. We will also briefly describe a current effort to build a ‘product’ based on our approach at Ford Motor.

**BIO:** Dr. Farias’ primary current interest is Revenue Management. More generally, he is interested in Dynamic Optimization and the analysis of complex stochastic systems

**FOR MORE INFORMATION ON DR. FARIAS’ RESEARCH, please visit:**

<http://web.mit.edu/vivekf/www/>