



The University of Chicago  
Department of Statistics

Master's Thesis Presentation

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**CLIFFORD CLIVE**

Department of Statistics  
The University of Chicago

**Making Better Use of Consumer Ratings Data:  
Reinterpreting the Ratings to Make More Accurate Predictions**

**FRIDAY, October 23, 2009, at 9:00 AM  
110 Eckhart Hall, 5734 S. University Avenue**

### **ABSTRACT**

Collaborative filtering is a term used to describe any method for comparing preferences among individuals and using those comparisons to make predictions of how individuals within the group will evaluate items that they have not yet rated. These methods are commonly used marketing techniques whose popularity has exploded since the advent of the Internet and powerful computing technology. In this paper we consider a set of *judges* who assign preference *ratings* to a set of *items*, for which not every judge has rated every item. We derive an EM algorithm and variations of a Bayesian algorithm to address the problem of predicting missing ratings, and evaluate the performance of each algorithm. We pay special attention to the problem of attempting to make objective predictions based on data that is inherently subjective in nature, and propose a method for translating ratings into a scale that allows for more intuitive comparisons, and yields more accurate predictions.