

# Oral Defense Announcement

## University of Missouri – St. Louis Graduate School

An oral examination in defense of the dissertation for the degree  
Doctor Business Administration with an emphasis in Information Systems

Sachin Sharma

### **Unraveling the Biases and Customer Heterogeneity in E-Commerce Recommendation Systems**

Date: March 20, 2024  
Time: 01:30 p.m. to 2:30 p.m.  
Place: 103 ABH

#### **Abstract**

AI algorithms are widely used in recommendation systems used to identify products, services, music, and search results. However, there are concerns about the fairness of such algorithms. Recommendation systems' biases are at the core of the antitrust allegations against some of the leading firms. This research extends the extant literature on responsible AI by examining recommendation systems that lack fairness and exhibit bias by promoting popular, sponsored, and private-label products to customers against their preferences on e-commerce platforms. This study aims to advance the theoretical understanding of factors that influence customers' perceived fairness (or lack thereof) and distrust related to recommendation systems. Additionally, in the extant IS and Computer Science literature, in a given context, AI fairness perception is viewed as uniformly experienced by all the individuals. However, based on organizational justice literature, we can propose that in a given context individuals may experience different levels of AI fairness perception due to their different levels of equity sensitivity, and accordingly react at different levels to these diverse fairness perceptions. Thus, it is important to understand how individuals may perceive the fairness of a recommendation system differently based on their individual characteristics. While equity sensitivity and exchange ideology have been studied in the management literature to explain individual heterogeneity in reactions to unfairness in managerial and organizational decisions, their effects on the perceived fairness of recommendation systems and on subsequent attitudes and behaviors related to them remain unexplored. This study reports that customers perceive a recommendation system with popularity bias, sponsored product bias, and private-label bias to be less fair than a recommendation system that provides neutral recommendations. Further, customers find popularity bias to be less unfair compared to the other two biases, demonstrating herd behavior. Equity sensitivity and exchange ideology explain the variation in the perceived fairness of the recommendation systems. Individuals with higher equity sensitivity (entitled) and exchange ideology perceived recommendation systems as less fair than others. Further, perceived fairness was found to negatively impact distrust towards the recommendation system. The findings contribute to improving our understanding of AI fairness, the factors that influence it, and its downstream influence on consumer attitudes and behaviors. The theoretical and practical implications of the findings are also discussed.

#### **Defense of Dissertation Committee**

Vivek K. Singh, Ph.D.  
Kailash Joshi, Ph.D.  
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