

## **Title: Modeling Users' Curiosity in Recommender Systems**

**Speaker: Dr. Xi (Sunshine) Niu**

### **Abstract:**

Today's recommender systems are criticized for recommending items that are too obvious to arouse users' interests. Therefore the research community has advocated some "beyond accuracy" evaluation metrics such as novelty, diversity, and serendipity with the hope of promoting information discovery and sustaining users' interests over a long period of time. While bringing in new perspectives, most of these evaluation metrics have not considered individual users' differences in their capacity to experience those "beyond accuracy" items. Open-minded users may embrace a wider range of recommendations than conservative users. In this research, we proposed to use curiosity traits to capture such individual users' differences. We developed a model to approximate an individual's curiosity distribution over different stimulus levels. We used an item's surprise level to estimate the stimulus level and whether such a level is in the range of the user's appetite for stimulus, called Comfort Zone. We then proposed a recommendation model that considers both user preference and their Comfort Zone where the curiosity is maximally aroused. A series of evaluation experiments have been conducted to show that our framework is able to rank higher the items with not only high ratings but also high curiosity stimulation. The recommendation list generated by our algorithm has higher potential of inspiring user curiosity compared to the state-of-the-art deep learning approaches. The personalization factor for assessing the surprise stimulus levels further helps the recommender model achieve smaller (better) inter-user similarity.

### **Short Bio:**

Dr. Xi "Sunshine" Niu is Associate Professor and Director of CCI Honors Program at the University of North Carolina at Charlotte. She obtained her Ph.D. degree in Information Science in 2012 from the University of North Carolina at Chapel Hill. Dr. Niu's research is Information Retrieval, Recommender Systems, Data and Text Mining. She has published around 70 papers in SIGIR, ICTIR, KDD, ACM Transactions on Information Systems, ACM Transactions on Knowledge Discovery from Data, etc. She has regularly served on the Program Committees for SIGIR, CIKM, WWW, WSDM, an JCDL. She has multiple NSF grants and various awards and contracts from industry. She has also regularly served on NSF panels including the NSF CISE core programs and the prestigious NSF CAREER program.