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*Towards Human-Centric Intelligent Systems: An Interactive  
Online Learning Approach.*

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**Abstract:** The past several years have witnessed a growing need for intelligent systems, such as recommender systems, and smart control systems, that work in real-time to satisfy people's various needs. The rapid appearance of new information, together with the ever-changing nature of the real-world environment, urges us to move from the passive learning paradigm to a more interactive and proactive one. In this talk, I will talk about a new interactive online learning paradigm based on multi-armed bandits and contextual bandits for human-centered intelligent systems. Interactive online learning solutions explore the unknowns by sequentially collect individual user's feedback, which helps address the notorious explore/exploit dilemma during sequential decision making. I will introduce our most recent development in collaborative multi-armed bandits and non-stationary bandits, which enable efficient interactive online learning in dynamically changing and potentially collaborative or structured real-world environments.

**Bio:** Qingyun Wu is a Ph.D. candidate in the Department of Computer Science, University of Virginia. Her research interests are in interactive online learning, including multi-armed bandit, reinforcement learning, and their applications to intelligent systems such as recommender systems, online learning to rank. Qingyun has received multiple prestigious awards from the University of Virginia, including the Virginia Engineering Foundation Fellowship and the Graduate Student Award for Outstanding Research at the Computer Science Department. Her recent work on dueling bandit based online learning to rank won the Best Paper Award of SIGIR 2019. She was also selected as one of the Rising Stars in EECS 2019.

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