Abstract:

Artificial Intelligence (A.I.) is a broad concept of training machines to think and behave like humans, with a specific emphasis on learning from the existing data to predict future outcomes. Since the concept of A.I. was introduced back in 1950s, the technology has seen a tremendous advancement in the development of both methodology and applications; but its critical role in a broader range of applications, especially in safety and toxicity assessment, has not yet been fully realized. Dr. Tong is a leading researcher in the A.I. field and manages the effort in the U.S. FDA in applying the A.I. and pertinent technologies for assessment and prediction of food and drug safety. In this seminar, Dr. Tong will first briefly introduce the basic concept and methodologies of A.I., including analyses of five categories of “data”, i.e., tabular, imaging, voice, text, and graphic data. Recently rapid advancement in deep learning and its potential utility in toxicology will be emphasized with several examples typical to safety and toxicology investigations. A.I. is empowered by big data; unfortunately, however, safety and toxicology datasets are normally small. To better apply A.I. for regulatory decision making, the speaker will discuss the guiding principle and best practice of A.I. in food and drug regulation. Finally, the rise of AI has also offered both opportunities and challenges to regulatory agencies such as FDA. The speaker will address some of the missteps encountered along the way and discuss the perspectives for future advancement.

Host: Wei Zheng