Challenges and Innovations in Building a Product Knowledge Graph

Knowledge graphs have been used to support a wide range of applications and enhance search results for multiple major search engines, such as Google and Bing. At Amazon we are building a Product Graph, an authoritative knowledge graph for all products in the world. The thousands of product verticals we need to model, the vast number of data sources we need to extract knowledge from, the huge volume of new products we need to handle every day, and the various applications in Search, Discovery, Personalization, Voice, that we wish to support, all present big challenges in constructing such a graph. In this talk we describe four scientific directions we are investigating in building and using such a graph, namely, harvesting product knowledge from the web, hands-off-the-wheel knowledge integration and cleaning, human-in-the-loop knowledge learning, and graph mining and graph-enhanced search. This talk will present our progress to achieve near-term goals in each direction, and show the many research opportunities towards our moon-shot goals..