



TEXAS TECH UNIVERSITY

Department of Computer Science

Empowering Machines with Knowledge from Acquisition, Inference, and Expansion

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Holden Hall 225 or Zoom

https://sites.google.com/view/tsalman/teaching/cs5120_sp23

Abstract: Artificial intelligence (AI) has received considerable attention in recent decades and has been successfully applied in a wide range of areas such as computer vision, natural language processing, and recommender systems. Despite the remarkable advancements that have been made, the current AI systems are not yet able to behave like humans who have the inherent capability to rapidly acquire new knowledge based on previously obtained knowledge. This limitation is caused by the fact that machines lack the knowledge that humans possess. In this talk, I will present our efforts to empower machines with knowledge from three key aspects, i.e., acquisition, inference, and expansion. First, I will introduce our work on enhancing the generalization and robustness of knowledge acquisition to gain more comprehensive knowledge. Second, I will discuss our attempt at knowledge discovery by the inference of previously acquired knowledge. Third, I will present our research on handling newly emerging knowledge during knowledge expansion. Then the talk will be concluded with a discussion on future directions in AI with knowledge.

Bio: Shichao Pei is a Postdoctoral Research Fellow in the Department of Computer Science and Engineering at the University of Notre Dame. He is working in Machine Intelligence and kNowledge Engineering (MINE) group with Prof. Xiangliang Zhang. He received his M.S. and Ph.D. in computer science from King Abdullah University of Science and Technology (KAUST). Before that, he received a bachelor's degree in software engineering from Xi'an Jiaotong University. His research interests span the areas of artificial intelligence, machine learning, and data mining. His recent work focuses on graph machine learning and knowledge representation learning with the aim to empower machines with knowledge. His research has been published at high-impact venues (e.g., KDD, WWW, AAAI, IJCAI, CIKM, and TKDE). He also served as PC and SPC at NeurIPS, ICML, ICLR, KDD, AAAI, IJCAI, etc.

