Structured Learning of World Knowledge for Natural Language Semantics

Mohit Bansal
Toyota Technological Institute, Chicago

4/12/2016 at 10:30 am
Core A (Room 301)

Abstract
For autonomous agents to be able to effectively follow instructions and hold conversational dialogue, it is necessary to resolve the various semantic, pragmatic, and common sense ambiguities that exist in everyday language. My research addresses the two fundamental requirements for robust language understanding: leveraging external world knowledge that is missing in standard NLP training datasets, and formulating machine learning methods that extract the precise disambiguation cues lying latent in this noisy, multimodal data. We develop structured and neural models that learn such world knowledge semantics via unlabeled Web-scale features, weakly supervised language embeddings, and cross-modal cues from vision and speech. We achieve state-of-the-art performance on various core NLP tasks and multimodal applications in vision and robotics.

Bio
Mohit Bansal is a research assistant professor (3-year endowed position) at TTI-Chicago. He received his Ph.D. from UC Berkeley in 2013 (where he was advised by Dan Klein) and his B.Tech. from IIT Kanpur in 2008. His research interests are in statistical natural language processing and machine learning, with a particular interest in semantics (lexical, distributional, compositional, and multimodal), question answering and dialogue, structured prediction, and neural networks. He was the recipient of a Google Faculty Research Award in 2014, an IBM Faculty Award in 2014, an ACL Best Paper Honorable Mention Award in 2014, and a Qualcomm Innovation Fellowship in 2011.
Webpage: http://ttic.uchicago.edu/~mbansal/

Faculty Host: Vladimir Pavlovic