University of Virginia

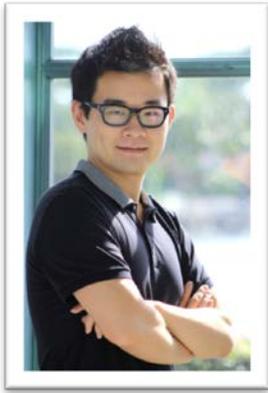# Cloud-Scale Data Analytics

SEMINAR ANNOUNCEMENT

Speaker: William Wang (CMU)
Date: Monday, April 25
Time: 10:45
Location: Rice Hall 242
Host: Andrew Grimshaw

Title: Scalable Learning and Reasoning for Large Knowledge Graphs

Abstract

Learning to reason and understand the world's knowledge is a fundamental problem in Artificial Intelligence (AI). While it is always hypothesized that both the symbolic and statistical approaches are necessary to tackle complex problems in AI, in practice, bridging the two in a combined framework might bring intractability—most probabilistic first-order logics are simply not efficient enough for real-world sized tasks.

With the vast amount of relational data available in digital form, now is a good opportunity to close the gap between these two paradigms. The core research question that I will address in this talk is the following: how can we design scalable statistical learning and inference methods to operate over rich knowledge representations? In this talk, I will describe some examples of my work in advancing the state-of-the-arts in theories and practices of statistical relational learning, including: 1) ProPPR, a scalable learning and reasoning framework whose inference time does not depend on the size of knowledge graphs; 2) an efficient structural gradient based meta-reasoning approach that learns formulas from relational data; 3) and representation learning for logic. I will conclude this talk by describing my other research interests and my future research plans in the interdisciplinary field of data science.

About the speaker: William Wang is a final-year PhD student at the School of Computer Science, Carnegie Mellon University. He has broad interests in machine learning approaches to data science, including statistical relational learning, information extraction, social media, speech, and vision. He has published more than 30 papers at leading conferences and journals including ACL, EMNLP, NAACL, IJCAI, CIKM, ICASSP, ASRU, Machine Learning, and Computer Speech & Language. He has received best paper awards (or nominations) at ASRU, CIKM, and EMNLP, a best reviewer award at NAACL 2015, the Richard King Mellon Presidential Fellowship in 2011, and he is a Facebook Fellowship finalist. He is an alumnus of Columbia University, and a former research scientist intern at Yahoo! Labs, Microsoft Research Redmond, and University of Southern California. In addition to research, William enjoys writing scientific articles that impact the broader online community: his microblog has more than 2,000,000 views each month. More: https://www.cs.cmu.edu/~yww/