

Department of Computer Science
University of Houston

SEMINAR SPRING 2011

WHEN: WEDNESDAY, MAY 4, 2011

WHERE: PGH 232

TIME: 11:00 AM

SPEAKER: Dr. Sriraam Natarajan, Wake Forest University School of Medicine

Host: Dr. Ricardo Vilalta

TITLE: Practical Statistical Relational Learning

ABSTRACT:

Statistical Relational Learning (SRL) Models combine the powerful formalisms of probability theory and first-order logic to handle uncertainty in large, complex problems. While they provide a very effective learning paradigm due to their succinctness and parameter sharing, tractable inference is a significant problem in these models. Earlier approaches focused on grounding the model to a propositional network to use existing inference algorithms. Other popular techniques include sampling and lifted inference, with a lot of interest in the latter recently.

In this talk, I first present an algorithm for performing efficient inference. This algorithm constructs the network incrementally and propagates probability bounds rather than probabilities. Then I will present a desktop assistant model that demonstrates the success of lifted inference methods in real-world applications. Next, I present a boosting method for learning in SRL models. Our results demonstrate that learning multiple weak models can lead to a dramatic improvement in accuracy and efficiency. Finally, I conclude the talk by outlining some interesting directions for future research.

Bio:

Sriraam Natarajan is currently an Assistant Professor in the Translational Science Institute of Wake Forest University School of Medicine. He was previously a Post-Doctoral Research Associate at the Department of Computer Science at University of Wisconsin-Madison. He graduated with his PhD from Oregon State University working with Dr. Prasad Tadepalli. His research interests lie in the field of Artificial Intelligence, with emphasis on Machine Learning, Statistical Relational Learning, Reinforcement Learning, Graphical Models and Bio-Medical Applications.