Keynote Talk

Twenty-Five Years of Combining Symbolic and Numeric Learning

For nearly 25 years my research group has investigated the use of domain knowledge, expressed in some version of mathematical logic, that is refined or exploited by numeric-based learning algorithms. These include what we called knowledge-based neural networks and knowledge-based support vector machines. I will cover the key ideas of these methods, as well as the behind- the-scenes motivations that lead to them. I will also describe why we switched from using the phrase "prior knowledge" to using "advice." Finally, I will cover some of our recent work on fast learning and inference for Markov logic networks (which can be viewed as a knowledge-based graphical model).

My group's papers are available at pages.cs.wisc.edu/~shavlik/mlrg/publications.html.

– Jude Shavlik (University of Wisconsin-Madison, USA)