Department of Computer Science and Engineering

Presents

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Graphical Models and Applications

Graphical models refer to a general framework, which combines a probabilistic approach to characterize data uncertainty and a graphical representation of the conditional dependence between random variables. They are widely used in many practical applications such as speech recognition, image processing, text mining and bioinformatics. In this talk, I will first give a brief introduction to graphical models and then discuss some research problems in detail. Specifically, I will first present a structure learning approach, which incorporates hidden Markov models and Bayesian networks, and its application to reconstruction of gene regulatory networks. I will then discuss a deep probabilistic model for automatic summarization. The model is a hierarchical Bayesian model with known structures. Results on Brown corpus will also be described.

Xue-wen Chen is currently Professor and Chair in the Department of Computer Science at Wayne State University. He is a senior IEEE member and the chair of IEEE Computer Society Technical Committee on Computational Life Sciences. He is the co-founder and steering committee chair of the IEEE Conference on Healthcare Informatics, Imaging, and Systems Biology, and a member in the IEEE Computer Society Bioinformatics and Biomedicine Steering Committee. He is the editor-in-chief of the International Journal of Computational Intelligence on Bioinformatics and Systems Biology. He also serves in the editorial board in several international journals such as BMC Systems Biology and IEEE Transactions on Information Technology in Biomedicine.

Dr. Chen received his PhD degree from Carnegie Mellon University, Pittsburgh, USA in 2001. He was a recipient of the NSF CAREER Award. He served as conference chair (and co-chairs) for ACM Conference on Information and Knowledge Management (CIKM) 2012, the IEEE international Conference on Healthcare Informatics, Imaging, and Systems Biology, 2011, the IEEE International Conference on Bioinformatics and Biomedicine (BIBM) in 2009 and the International Conference in Machine Learning and Applications in 2011 and 2008. His research interest includes machine learning, data mining, bioinformatics, systems biology, and healthcare informatics.

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