

学术报告

报告题目: Transduction on Digraphs via Random Walks

报告人: Dr. Cheng Li (Bioinformatics Institute, Singapore)

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报告内容: In this talk we consider the problem of graph-based transductive classification, and we are particularly interested in the directed graph scenario which is a natural form for many real world applications.

Different from existing research efforts that either only deal with undirected graphs or circumvent directionality by means of symmetrization, we propose a novel random walk approach on directed graphs using absorbing Markov chains, which can be regarded as maximizing the accumulated expected number of visits from the unlabeled transient states.

Our algorithm is simple, easy to implement, and works with large-scale graphs. In particular, it is capable of preserving the graph structure even when the input graph is sparse and changes over time, as well as retaining weak signals presented in the directed edges.

We present its intimate connections to a number of existing methods, including graph kernels, graph Laplacian based methods, and interestingly, spanning forest of graphs. Empirically our algorithm is systematically evaluated on a wide range of applications, where it has shown to perform competitively comparing to a suite of state-of-the-art methods.

Biography: Dr. CHENG Li is a scientist and principal investigator in Bioinformatics Institute (BII), Singapore. Prior to joining BII, He worked at Statistical Machine Learning group of NICTA, Australia, TTI-Chicago, USA, and University of Alberta, Canada, where he obtained his Ph.D. in Computer Science. He has published around 60 scientific papers in international conferences and journals. His research expertise is mainly on computer vision and machine learning. More information can be found at <http://web.bii.a-star.edu.sg/~chengli/>.

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