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FACULTY OF SCIENCE AND TECHNOLOGY
DEPARTMENT of
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"*Multilabel Classification on Hierarchical Structures*"

by

Prof. James Tin-Yau KWOK
The Hong Kong University of Science and Technology

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Time: 4:30PM – 5:30PM
Venue: JM08 (University of Macau)

Abstract

Many real-world applications involve multilabel classification, in which the labels are organized in the form of a tree or directed acyclic graph (DAG). Sometimes, the prediction paths are required to end at leaf nodes (leading to mandatory leaf node prediction or MLNP), while sometimes the prediction paths can end at internal nodes (non-mandatory leaf node prediction, NMLNP). In this talk, we present novel hierarchical multilabel classification algorithms which (i) consider the global hierarchy structure; (ii) can be used on both tree- and DAG-structured hierarchies; and (iii) can be used for both MLNP and NMLNP. The proposed algorithms are based on simple iterative greedy strategies. They are thus computationally efficient and easy to implement; and yet guarantee optimality of the obtained solution. Besides, they can be used with a new hierarchy-aware loss function that is more appropriate than the popularly used H-loss function in hierarchical multilabel classification. Experiments on a number of real-world data sets with tree- and DAG-structured label hierarchies show promising results.

Biography

Prof. Kwok is a Professor in the Department of Computer Science and Engineering, Hong Kong University of Science and Technology. He received his B.Sc. degree in Electrical and Electronic Engineering from the University of Hong Kong and his Ph.D. degree in computer science from the Hong Kong University of Science and Technology. Prof. Kwok served as an Associate Editor for the IEEE Transactions on Neural Networks and Learning Systems from 2006-2012, and is currently serving as Associate Editor for the Neurocomputing journal.

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