

Statistics Seminar  
Department of Mathematical Sciences

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| <b>DATE:</b>     | Thursday, February 22, 2018   |
| <b>TIME:</b>     | 1:15pm - 2:15pm   |
| <b>LOCATION:</b> | WH 100E   |
| <b>SPEAKER:</b>  | Yanke Zhu, South China Agricultural University  |
| <b>TITLE:</b>    | Logistic Regression-Based Trichotomous Classification Tree and Its Application in Medical Diagnosis |

**Abstract**

The classification tree is a valuable methodology for predictive modeling and data mining. However, the current existing classification trees ignore the fact that there might be a subset of individuals who cannot be well classified based on the information of the given set of predictor variables and who might be classified with a higher error rate; most of the current existing classification trees do not use the combination of variables in each step. An algorithm of a logistic regression-based trichotomous classification tree (LRTCT) is proposed that employs the trichotomous tree structure and the linear combination of predictor variables in the recursive partitioning process. Compared with the widely used classification and regression tree through the applications on a series of simulated data and 2 real data sets, the LRTCT performed better in several aspects and does not require excessive complicated calculations. Key words: data mining; decision tree; classification and regression tree (CART); logistic regression (LR); logistic regression-based trichotomous classification tree (LRTCT).

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