

Thesis Title	A Hybrid Predictive Model for Classification of Dengue Haemorrhagic Fever Outbreak Risk
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ABSTRACT

Outbreak of Dengue Haemorrhagic Fever is still very crucial in international public health problem. Therefore, the prediction is obviously urgent in order to monitor and prevent a widespread of the fever in advance. However, the traditional predictive models of Dengue Haemorrhagic Fever outbreak are complicated because of the large number of input data which are inconvenient and costly. To deal with this problem, this thesis proposes a predictive model for classification of Dengue Haemorrhagic Fever outbreak risk with hybrid method by using weather features as input data. This predictive model uses the entropy measure and the principal component analysis that are combined with the backpropagation neural network. The entropy measure is used for extracting relevant weather data patterns and the principal component analysis is used for extracting principal features. Then, the backpropagation neural network is deployed to predict the possible risk of Dengue Haemorrhagic Fever outbreak. The experiment and its result show that the proposed model produces the optimal predictive result with 94% accuracy using only data patterns of three principal features including maximum temperature, mean temperature, and relative humidity.

Keywords: Backpropagation / Dengue haemorrhagic fever / Information entropy /
Neural network / Prediction / Principal component analysis

