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An automatic intelligent model building system with business applications

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An automatic intelligent model building system was developed. This system has five components: data exploration component, data preparation component, model building/validation/selection component, result automatic generation/data scoring component, and model understanding component. This system support four type of target variables – binary, nominal, count, and numerical. The data preparation component can be used to fix data problems such as missing values, skewness, and high cardinality. The modeling component can automatically identify parameter that leads to build a better model. Currently it supports neural network, decision trees, gradient boosting, rand forest and many regression algorithms. After the optimal model selected, the user can further test the model performance or use the selected model to score new data. This system also attempts to open the black box to allow the user to see some insight of the modeling results such as interaction among predictors, important predictors, how to alter predictors to change the predicted values. This system is intended to be used by company personal without extensive model building training since there is a gap between the demand and supply of well-trained analysts. Two case studies will be discussed. The first case is to use this system on establish optimal pricing of an auto insurance firm in China. The second case is to develop a risk score system for an internet lending firm. The results from both cases are very positive and encouraging.

Biography

Morgan C Wang received his PhD at Iowa State University in 1991. He is the funding Director of Data Mining Program and Professor of Statistics at University of Central Florida. He has published one book and over 80 papers in referee journals and conference proceedings on topics including interval analysis, meta-analysis, computer security, business analytics, health care analytics and data mining. He is the elected member of International Statistical Association and member of American Statistical Association and International Chinese Statistical Association.

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