

Thesis Title	Synergistic Genetic Algorithms for Inductive Learning (SynGAIL)
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Abstract

Genetic Algorithms for Inductive Learning (GAIL) is a technique in Data Mining which can be used for classification. It combines genetic algorithms with inductive learning to produce rules which can efficiently classify data set into appropriate categories.

This research study applied and improved GAIL in classification of students' data. Synergy of different GAILs was implemented which resulted in Synergistic Genetic Algorithms for Inductive Learning (SynGAIL). A new fitness function was also introduced to accord with the characteristics of the data. SynGAIL was applied to obtain rules which can be used to estimate the ability to study (i.e. the range of GPA expected) of applicants to the M.Sc. programme in Information Technology at School of Information Technology, King Mongkut's University of Technology Thonburi. Data set used for training and testing were records of students who had completed the programme between semester 2/1996 and semester 1/1999.

Among results obtained from GAIL, SynGAIL and SynGAIL (with new fitness function), the third yielded the best result (with an accuracy of 74%). The study reveals relevant characteristics in the classification and highlights the importance of having adequate amount of training data set. The study also affirms the potential of synergistic approach, especially in improving efficiency of the result when training is restricted by small amount of data set.

Keywords: Classification / GAIL / Genetic Algorithms / Genetic Algorithms for Inductive Learning / Inductive Learning / Information Technology / King Mongkut's University of Technology Thonburi / KMUTT / Synergistic Genetic Algorithms for Inductive Learning / Synergy / SynGAIL