特別講演会の案内

題目: Probabilistic Ensemble Fuzzy ARTMAP Optimization Using Hierarchical Parallel Genetic Algorithms
講師: Prof. LOO CHU KIONG (University of Malaya)

- **日時：** 2013 年 2 月 18 日（月）10：00～11:00
- **場所：** 首都大学東京日野キャンパス 1 号館会議室 1
- **参加費：** 無料
- **言語：** 英語

Title: Probabilistic Ensemble Fuzzy ARTMAP Optimization Using Hierarchical Parallel Genetic Algorithms
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Abstract: This study proposes a comprehensive methodology for overcoming the design problems of the Fuzzy ARTMAP neural network, namely the performance dependence on the sequence in which training data is presented for supervised learning, and the settings of the ARTMAP parameters such as vigilance. A genetic algorithm search heuristic was chosen to solve this multi-objective optimization problem. To further augment the ARTMAP's pattern classification ability, multiple ARTMAPs were optimized via genetic algorithm and assembled into a classifier ensemble. An optimal ensemble was realized by the inter-classifier diversity of its constituents. This was achieved by mitigating convergence in the genetic algorithms by employing a hierarchical parallel architecture. Individual classier decisions within the ensemble were then combined using a probabilistic voting strategy. While all of the above issues relied on existing solutions in literature, this study integrated the disparate methods to operate within a single framework, which is the proposed novel and uni ed parallel optimization method for improving pattern classification accuracy. The methodology was benchmarked using data sets from UCI Machine Learning Repository and was able to achieve higher accuracy than comparable classification methods in several tests.

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