

● Dr.Ohn Mar San

< Profile >

Nationality: Myanmar

Educational Background in Japan:

April 2000 – March 2004

Graduate School of Knowledge Science

Japan Advanced Institute of Science and Technology (Doctor)

Major Field: Knowledge Science

Present Institution / Status:

Yangon Co-operative Degree College, Myanmar / Associate Professor



(Image) Dr. Ohn Mar San

< Follow up Research Fellowship >

Period: January 1, 2010 – March 31, 2010

Host University: Japan Advanced Institute of Science and Technology

Research Topic: Study on Extension of Fuzzy k -Means Paradigm to Clustering
Categorical Data

Outline of Research

Cluster analysis divides data into groups (clusters) in order to improve understanding or to find structure in data. In real applications there is very often no sharp boundary between clusters so that fuzzy clustering is often better suited for the data. How to develop ways of fuzzy clustering about categorical data is very important topic because many applications in

data mining areas include such kind of data. The fuzzy k -means algorithm is well known for its efficiency in clustering large datasets. This fuzzy k -means is only defined over numerical data since the ability to compute the mean is required. The purpose of the research is to develop a new efficient, scalable method of fuzzy clustering for categorical data and demonstrate the effectiveness of this method with experimental results. Particularly, we develop an extension of the fuzzy k -means algorithm such that it can be applied for categorical data. This has been done by Huang (1999) resulted in the fuzzy k -modes algorithm. However, the non-unique selection of a mode in a data set makes the algorithm non-robust. We avoid this drawback by introducing a new notion of “fuzzy cluster centers” for a categorical data set, and define a new dissimilarity measure between a categorical object and a fuzzy cluster center based on the weighted sum of the simple matching dissimilarity measure between categorical objects. As such, we can develop an algorithm for fuzzy clustering of categorical data.

Results of Research

This research has been the modeling of fuzzy clustering algorithm for categorical data. We developed a new efficient, scalable method of fuzzy clustering for categorical data and demonstrated the clustering performance with two well known data sets, namely, soybean disease and nursery databases. The experimental result has shown that our proposed algorithm gave the better results and was efficient when clustering large data sets.

As an output of my fellowship, I am now in the process of writing an article that I hope to be published during this year.

Further Research Plan

Defining categorical attribute is an important task in cluster analysis. The attribute might be nominal, ordinal, or an interval scale. Different definitions of the attributes might lead to undesirable clustering results. Study on this issue is the subject of our further work.

● Research Advisor: Professor NAKAMORI Yoshiteru

Outline of research

It is to build the fuzzy clustering model for categorical data using a new dissimilarity measure and a new approach to update the fuzzy cluster centers in the frame work of fuzzy k -means algorithm.

Research results

Dr. Ohn Mar San was able to develop a new efficient, scalable method of fuzzy clustering for categorical data and demonstrate the clustering performance with two well known data sets, namely, soybean disease and nursery databases. The experimental result has shown that her algorithm gave the better results and was efficient when clustering large data sets.

As an output of her fellowship, she is now in the process of writing an article that she hopes to be published during this year.

Further research plan

Defining categorical attribute is an important task in cluster analysis. The attribute might be nominal, ordinal, or an interval scale. Different definitions of the attributes might lead to undesirable clustering results. Study on this issue is the subject of her further work.

Research activities



During the research presentation of Dr. Ohn Mar San at the seminar room of Prof. Nakamori's Lab in the Japan Advanced Institute of Science and Technology



During the research presentation of Dr. Ohn Mar San at the seminar room of Prof. Nakamori's Lab in the Japan Advanced Institute of Science and Technology



Part of the audience during the presentation, both master and doctoral students from different countries



"Prof. Nakamori Laboratory training camp research presentation 2010" in Japanese Style Hotel Sanrakuen



“Prof.Nakamori Laboratory training camp research presentation 2010” in Japanese Style Hotel Sanrakuen, February 26, 2010



A group picture with Prof.Nakamori and Lab members after the presentation in Japanese Style Hotel Sanrakuen, February 27, 2010