

2012 International Workshop on Intelligent Data Management

June 8, Friday, 2012

National University of Kaohsiung, Taiwan

Time	Agenda	Location
09:00-09:30	Registration	COM M01-111
09:30-10:00	Opening Ceremony Dean, College of Management	COM M01-111
10:00-10:50	Invited Speech (1) Speaker: Prof. Katsutoshi Yada Topic: <i>Data Mining and Shopping Path Research</i> Director, Data Mining Applied Research Center, Kansai University, Japan	COM M01-111
10:50-11:10	Coffee Break	COM
11:10-12:00	Invited Speech (2) Speaker: Prof. Wen-Yang Lin Topic: <i>Mining Indirect Association Rules in Data Streams and Its Applications</i> Department of Computer Science and Information Engineering National University of Kaohsiung, Taiwan	COM M01-111
12:00-13:30	Lunch	
13:30-14:20	Invited Speech (3) Speaker: Prof. Hsin-Chang Yang Topic: <i>Recent Advances in Self-Organizing Maps for Text Mining</i> Department of Information Management National University of Kaohsiung, Taiwan	COM M01-111
14:20-14:40	Coffee Break	COM
14:40-16:00	Panel Discussion (4) Theme: Trend of Social Network Analysis and Mining Moderator: Prof. Leon Shyue-Liang Wang Department of Information Management National University of Kaohsiung, Taiwan	COM M01-111

Data Mining and Shopping Path Research

Katsutoshi Yada

Management Information Systems

Faculty of Commerce

Kansai University, Japan

Abstract

The purpose of my talk is to provide a foundation of communication between researchers of differing disciplines through the presentation of a framework for customer path research, and to clarify the direction of research in related fields. We introduce cases from within our research such as the analysis of sales floor visit patterns using character string analysis methods, purchase behavior modeling using time information and differences in movement distance according to sales floor.

Short Biography

Katsutoshi Yada is Professor of Management Information Systems in the Faculty of Commerce, Kansai University, Osaka, Japan. He received his M.A. and Ph.D. in Business Administration from Kobe University of Commerce, Hyogo, Japan, in 1994 and 2002, respectively. He was a visiting scholar of School of business at Columbia University from 2006 to 2007. He is currently chair of Program on "Data Mining and Service Science for Innovation", and the director of Data Mining Laboratory at Kansai University supported by MEXT. His present research interests include data mining for service, and information strategy concerning data mining. His papers have appeared in several international journals, including Data Mining and Knowledge Discovery, Soft Computing, Decision Support Systems and others. He had been a guest editor of special issues in Information Science. He received Distinguished Professor Award from Kansai University and many international and domestic awards from academic societies and conferences. He has been chairman and member of various program committees in many international data mining conferences and workshops, including TC chair of IEEE SMC, ICDM and others. He is a member of IEEE, AMA and AMS.

Mining Indirect Associations over Data Streams and Its Applications

Wen-Yang Lin

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National University of Kaohsiung, Taiwan

Abstract

An indirect association refers to an infrequent itempair, each item of which is highly co-occurring with a frequent itemset called “mediator”. Although indirect associations have been recognized as powerful patterns in revealing interesting information hidden in many applications, such as recommendation ranking, substitute items or competitive items, and common web navigation path, etc., all work conducted up to date has focused on mining indirect associations from static data; almost no work, to our knowledge, has investigated how to discover this type of patterns from streaming data. In this talk, I will introduce the problem of mining indirect associations from data streams and describe our recent work towards a generic solution of this problem, that is, a generic window model that can represent all classical streaming models and retain user flexibility in defining new models. In this context, a generic algorithm is developed, which guarantees no false positive rules and bounded support error as long as the window model is specifiabale by the proposed generic model. I will also brief some promising and interesting applications of this new technique.



Wen-Yang Lin a professor at the Department of Computer Science and Information Engineering, National University of Kaohsiung. He received his B. S. and M. S. both in Computer Science and Information Engineering from National Chiao-Tung University in 1988 and 1990, respectively. He then received his Ph.D. in Computer Science and Information Engineering from National Taiwan University in 1994.

In 1996, he joined the Department of Information Management at I-Shou University and become Professor and served as the department Chair in 2003. From 2004 to 2007, he has chaired the Department of Computer Science and Information Engineering at National University of Kaohsiung, and served as the Director of Computer Science and Information Center from 2008 to 2010. He was a Senior Visiting Scholar in University of Maryland, Baltimore County from 2010 to 2011. His current research interests include data mining, data warehousing, and evolutionary computation.

Dr. Lin is regular reviewer for major journals and conferences, and has co-edited several special issues of renown international journals, (co-)authored more than 140 refereed publications, served as co-chair, a member of program committees and organized special sessions for many international conferences, including ASONAM, IEEE SMC, WCCI, IEA/AIE, JIS, NBIS, ICS, and KES. He is a member of IEEE, the Taiwanese AI Association and the Institute of Information and Computing Machinery.

Recent Advances in Self-Organizing Maps for Text Mining

Hsin-Chung Yang

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Abstract

The self-organizing map (SOM) model is a well-known neural network model with wide spread of applications. The main characteristics of SOM are two-fold, namely dimension reduction and topology preservation. Using SOM, a high-dimensional data space will be mapped to some low-dimensional space. Meanwhile, the topological relations among data will be preserved. With such characteristics, the SOM was usually applied on data clustering and visualization tasks. However, the SOM has main disadvantage of the need to know the number and structure of neurons prior to training, which are difficult to be determined. Several schemes have been proposed to tackle such deficiency. Examples are growing/expandable SOM, hierarchical SOM, and growing hierarchical SOM. These schemes could dynamically expand the maps, even generate hierarchical maps, during training. Encouraging results were reported. Basically, these schemes adapt the size and structure of the map according to the distribution of training data. That is, they are data-driven or data-oriented SOM schemes. In this presentation, several adaptable SOMs will be discussed and a novel topic-oriented SOM scheme which is suitable for document clustering and organization will also be addressed. The proposed SOM will automatically adapt the number as well as the structure of the map according to identified topics. Unlike other data-oriented SOMs, this approach expands the maps and generates the hierarchies both according to the topics and their characteristics of the neurons. The preliminary experiments give promising result and demonstrate the plausibility of the method.

Short Biography

Hsin-Chang Yang received his B. Sc. degree in Computer Engineering from National Chiao-Tung University, Hsinchu, Taiwan. He then studied in National Taiwan University, Taipei, Taiwan and obtained his M. Sc. and Ph. D. degrees, both in Computer Science and Information Engineering, in 1990 and 1996, respectively. After two years of military service, he joined the faculty of Department of Information Management in Chang Jung Christian University, Tainan, Taiwan as an assistant professor. He was then promoted to associate professor and founding chairman of Department of Computer Science and Information Engineering in the same university in 2005. In 2007, he joined the Department of Information Management in National University of

Kaohsiung, Kaohsiung, Taiwan as an associate professor. He became a full professor since 2010 and served as the chairman of the department since 2011. He is editors of several international journals and committee members of dozens of international conferences. Dr. Hsin-Chang Yang has published over 100 research articles in referred journals and proceedings of international conferences. His research interests include neural networks and its application to pattern recognition (subject on the area of optical character recognition), text mining and its applications, text structuring and categorization, knowledge discovery from texts, automatic construction of hypertexts, and image retrieval.