CPAMI Distinguished Professor Andrew Wong Receives Best Paper Award at DMIN’17

Professor Andrew K.C. Wong, Dr. Peiyuan ZHOU and Mr. Antonio SZE-TO are the recipients of the Best Paper Award at the 13th International Conference on Data Mining 2017 (DMIN’17) held in Las Vegas, USA.

Professor Andrew K.C. Wong, Distinguished Professor Emeritus, was the founding director of what was called “Pattern Analysis and Machine Intelligence (PAMI) Lab” under the Faculty of Engineering at the University of Waterloo (1984). The lab has become in 2011 the Center for Pattern Analysis and Machine Intelligence (CPAMI). Dr. Wong presented the accepted paper entitled “Discovering Deep Knowledge from Relational Data by Attribute Value Association” and was given the Best Paper Award for its research novelty, technical content and presentation at DMIN’17.

DMIN’17 is an international conference for academics and practitioners held simultaneously with other joint conferences as part of CSCE’17, the 2017 World Congress in Computer Science, Computer Engineering, and Applied Computing. CSCE’17 is one of the largest annual gatherings of researchers and practitioners in computer science, computer engineering and applied computing. Participants range from established researchers on Professorial level, starting researchers (post-doc, PhD, Masters and Bachelor level) and contract researchers unto practitioners. The scope of meeting includes all aspect of data mining over private or public companies or research institutions. Last year, 55% of CSCE attendees were from academia, 24% from industry; 20% from government and funding agencies. About half of the attendees were from outside USA; from 74 nations.

(DMIN’17, see http://dmin-2017.international-conference-on-data-mining.com/).

Abstract:
Discovering Attribute-Value Association (AVA) is of fundamental importance in knowledge discovery. Market Basket Analysis is an archetypical application. However, most existing algorithms rely only on frequency counts directly obtained from data at the surface and thus cannot reveal deeper knowledge, i.e. the AVAs governed by hidden factors inherent in the data. This paper proposes a new method, called Attribute-Value Association Algorithm (AVAA), which can i) discover statistically significant associations at the Attribute-Value level from relational dataset, ii) disentangle associations to unveil different AVAs corresponding to different hidden factors. The performance of AVAA is validated via experiments on both synthetic and real-world datasets. AVAA demonstrated better identification rate when comparing with Frequent Pattern Mining algorithms, particularly when noise was present.