The PVAD Algorithm to Learn Partial-Value Variable Associations

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<th>17 April 2018 (Tuesday)</th>
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<td>Time</td>
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<td>Venue</td>
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Abstract

Existing data analytic techniques are mostly based on building the same one model of variable relations over the full ranges of all variable values, although relations of variables may exist only for certain values of variables or different relations exist for different values of variables. This talk presents the Partial-Value Association Discovery (PVAD) algorithm which discovers variable relations/associations that exist in partial ranges of variable values from large amounts of data in a computationally efficient way. The PVAD algorithm allows building a structural model of partial- and full-value variable associations in multiple layers that captures individual and interactive effects of multiple variables by learning from data. The applications of the PVAD algorithm to cyber attack detection and engineering retention are also presented.

About the Speaker

Professor Nong Ye received her Ph.D. degree (1991) in Industrial Engineering from Purdue University, and her M.S. degree (1988) and B.S. degree (1985) in Computer Science from the Chinese Academy of Sciences and Peking University. She has been a full professor at Arizona State University since 2002. Her past and
current research has received over $8M external funding support and has produced eighty-five journal papers and five books, including Data Mining: Theories, Algorithms, and Examples. Her recent research focuses on developing data mining algorithms to discover multivariate data associations for capturing both partial-value and full-value variable associations as well as both individual and interactive effects of multiple variables. New algorithms have been applied to cyber attack detection, engineering retention and education, and energy systems modeling.

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*All are Welcome!*

SEEM Seminar 2017-2018/025