專 題 演 講

演 講 者：洪宗貝教授（高雄大學資訊工程學系）

演講題目：Applying Computational Intelligence Techniques to Knowledge Engineering

演講摘要：

Knowledge engineering is an important research field for intelligent systems. It includes any kind of data or knowledge preprocessing, learning, mining, and integration. In this speech, I will introduce how computational intelligence can help improve the performance and quality of knowledge engineering. Three parts will be covered. In the first part, I will introduce several GA-based fuzzy data-mining methods for automatically extracting membership functions for fuzzy association rules. All the genetic-fuzzy mining methods first use evolutional computation to find membership functions suitable for mining problems and then use the final best set of membership functions to mine fuzzy association rules. Through appropriately designed fitness functions, these approaches can avoid the formation of bad kinds of membership functions and can provide important mining results to users. In addition, feature selection is an important pre-processing step in mining and learning. A good set of features can not only improve the accuracy of classification, but also reduce the time to derive rules. Thus in the second part, I will state some GA-based clustering methods for attribute clustering and feature selection. The proposed approaches for attribute clustering can also easily handle the problem of missing values in classification. In the last part, I will describe suitable integration techniques for various kinds of mined knowledge based on evolutionary computation. Some integration algorithms respectively derived from the Michigan approach and the Pittsburgh approach will be explained. The Michigan approach encodes each rule as an individual; on the contrary, the Pittsburgh approach encodes a rule set as an individual. Both of them have their own advantages and disadvantages.

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現職：高雄大學資工系教授
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經歷：Tzung-Pei Hong received his Ph.D. degree in computer science and information engineering from National Chiao-Tung University in 1992. He served as the first director of the library and computer center, the Dean of Academic Affairs and the Vice President in National University of Kaohsiung. He is currently a distinguished professor at the Department of Computer Science and Information Engineering in NUK.

He has published more than 400 research papers in international/national journals and conferences and has planned more than fifty information systems. He is also the board member of more than thirty journals and the program committee member of more than three hundreds conferences. His current research interests include artificial intelligence, data mining, soft computing, and information system design.