

## **1. Decision Support Models on the Popularity of Motion Pictures**

This project develops decision support models for predicting the popularity of motion pictures and identifying the influential attributes for their popularity. About 100 screened movies are collected and input attributes and output attribute are identified to build decision support models, using intelligent techniques such as support vector machines, rough sets and neural networks. Director power, star power, distributor power, production cost, genre, symbolicity, censorship, release date and so on are quantified as input attributes and the popularity of motion pictures are set as an output attribute. Different sets of experiments, using additional input attributes, and varying value ranges of output attributes, the number of hidden neurons, the number of training and testing records, and parameter settings of intelligent techniques are conducted to investigate a better accuracy rate of each model. If-then rules and core input attributes are identified to support the decision makers in the film industry. This project discusses the possible use of these results for movie producers and investors who wish to reduce their financial loss by predicting the popularity of upcoming movies.

## **2. Product Design Support Models Using Kansei Engineering and Intelligent Techniques**

This project develops product design support models, using Kansei engineering and intelligent techniques such as neural networks and rough sets. Kansei engineering is defined as the ‘An ergonomic consumer-oriented technology to translate human feelings and psychological needs into product function and design’. Kansei engineering is used to extract and quantify the product form elements and a given product image perceived by consumers.

For example, the mobile phone product design form elements such as body shape, length and width ratio of body, function buttons style, screen size, number buttons arrangement, color, weights, sound, and tactility are identified and quantified, and consumers' psychological feelings such as simple-complex, handsome-rustic and leisure-formal on the given mobile phone design are identified and quantified. Intelligent techniques such as neural networks and rough sets are then used to develop the product design support models by identifying the relationship between the product design form and the product image perceived by the consumers or users. The models can help the product designer determine the best combination of product form elements for matching a given product image. Neural networks and rough sets are used to model the product design process for describing the relationship between the product form and the consumer's perception of the product image, where the consumer's perception is often expressed subjectively and imprecisely. The purpose of this project is to develop the intelligent models for supporting consumer-oriented product design.