A Study on the Application of TRIZ to CAD/CAM Systems

黃齡乙、賴元隆

E-mail: 9607876@mail.dyu.edu.tw

ABSTRACT

This study aimed to analyze and investigate CAD/CAM software available in the market. AutoCAD, AlphaCAM, Mastercam, and LiteCAM version1 were selected to compare the icon expressions and functional operations of these systems. The main functions of above software systems are geometric designing and geometric image editing. Making users understand the meaning of the icons when they use commands or functions and providing easy operations of the functions by improving or innovating icon designs and functions were the main purposes of this study. Based on TRIZ (theory of inventive problem solving), this study designed a modified contradiction matrix and selected 10 associated features to reduce the range of matrix query and increase the association with the problem to be improved. The suggested principles derived from features to change and undesired results were used to analyze and discuss the problem. The feasible principles were adopted to provide ideas of modification. Finally, inventive modification of the problem to be improved could be achieved. Through the above research method, improvement of problems related to CAD/CAM software was considerably benefited. In the aspect of icon expression, functional differentiation and overall beauty of the icons were effectively increased. In the aspect of operational functions, the functions could be more easy to use and compliant with the demand for convenience. In the future, multiple integrations with TRIZ method could be attempted to investigate CAD/CAM related problems. Perhaps, the constraint of the current operational environment can be subverted, and intelligent CAD/CAM systems can be developed.

Keywords : icon ; TRIZ ; CAD/CAM

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