

A golf head CAD/KBE optimization design system

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Abstract

The purpose of this study was to construct a knowledge-based CAD/KBE system for the optimal design of golf heads. The inability of conventional CAD systems to identify existing knowledge during design and manufacturing processes is a current development bottleneck. Therefore, this study attempted to effectively introduce and integrate KBE technology into a CAD system, so as to achieve the objective of knowledge driven automation (KDA). This study selected golf iron heads with a complex-design surface as the research subject, adopted commercial CAD software (UG/NX) and its secondary development environment as a platform and applied perturbation vectors in the control of NURBS free-form surfaces. We changed the CAD's entity shapes and physical properties, integrated the optimal principle of design with a CAD solid model, to automatically drive the CAD solid model of golf iron heads according to the design objectives, and constructed a knowledge-based optimal CAD design technology.

Keyword : Knowledge-based engineering; Knowledge Driven Automation; Perturbation vector.