Generative CAD and CAE Integration Using Common Data Model

G. P. Gujarathi and Y. –S. Ma*

Abstract— The proposed method includes generation of a "common data model" (CDM) containing all the required parametric information for both CAD and CAE analysis. CDM stores and supplies the associative data to both CAD and CAE models and thus maintaining the associative dependencies between them. As the common data model gets modified according to designer's intent, the changes in it are consistently reflected in both CAD and CAE models through regeneration and analysis iteration. The same data model can be used to work with different CAD and CAE packages since it is totally independent from the software tools used. The data model is reusable and the whole process can be automated so that the embedded expertise in the cycles of the adaptive design and manufacturing can be consistently applied iteratively during product development processes.

G. P. Gujarathi is a MSc student with the Department of Mechanical Engineering, University of Alberta, AB T6G 2G8, Canada. Tel: 780-248-1727; e-mail: gujarath@ualberta.ca

*Corresponding author. Y.-S. Ma is an Associate Professor with the Department of Mechanical Engineering, University of Alberta, AB T6G 2G8, Canada. Tel: 780-492-4443; Fax: 780-492-2200; e-mail: yongsheng.ma@ualberta.ca

The full paper is available. Please contact the corresponding author.