

Determining Process Configuration for NC Machining of Free Surfaces

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Process planning is a key feature that an intelligent CAD/CAM system should possess. In this research, We address the problem of determining process configuration to manufacture the free surfaces. Since the process configuration is characterized by the number of axes as well as the axis configuration, there are virtually infinite number of process configuration. Thus, determining process configuration to manufacture a free surface is to determine the number of axes together with workpiece orientation.

The developed algorithm evaluates the processability of the given surface by applying the three/four/five-axes procedures sequentially. Since the algorithm also finds the workpiece setup orientation, it can be used as a means for determining process configuration of the free surfaces. To illustrate and test the developed algorithm numerical simulation are presented.