Pengembangan metode pendeteksian ruang terbatas (Closed Bounded Volume) produk dengan bentuk kompleks melalui paired normal vectors bucketing (PNVB) untuk pembuatan lintasan pahat pemesinan awal (Roughing) multi axis = Development of closed bounded volume detection method of complex shape product through paired normal vectors bucketing (PNVB) for toolpath generation of multi axis roughing

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Abstrak

Sculptured surface machining technology is increasing its role in modern manufacturing. Products? surfaces become more complicated each day and require technology that is able to perform machining processes more accurately, precisely and take lesser time and cost. Nowadays, CAM helps so much on these matters. One of the difficulties in performing sculptured surface machining process is machining on feature which can not be reached by ordinary 3 axis machining process, called closed bounded volume (CBV).
The thesis is discussing the development of algorithm that not only can analyze a model as a whole, but also can automatically detect CBV on a model, which is a 3D faceted model, through Paired Normal Vectors Bucketing (PNVB). And the algorithm also automatically generates tool path for multi axis roughing on the CBV. The algorithm development and the model analysis are worked based on faceted model in STL file format. As the result, the algorithm has successfully detected CBV in a complex-shaped model and listed the tool?s coordinates and orientations during machining process on the CBV.