

Automatic Slider Design in Injection Moldings

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Abstract : This study proposes an approach to determine the undercut regions and their releasing directions for slider design of complex parts represented by the file format of STL (STereoLithography). In order to delineate the border of undercut regions, orthogonal cutting planes are firstly employed to automatically find the inner loops of a part model. To discover the facets belonging to undercut regions, attributes are then assigned to the facets of the part model based on the topological relationship of adjacent facets of each inner loop. After that, the undercut regions are separated from other facets in the model. Through the recognized facets of the undercut regions, the concept of 'visibility map (V-map)' is further applied to determine feasible releasing directions for each of the undercut regions. The undercut regions having the same releasing direction are finally grouped to form a slider in the injection mold.

Keywords : solid model, STL data, injection mold design, visibility map

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