

Paper 'Construction of a manifold ship model, derived from a wireframe mesh'

Herbert J. Koelman, W.B. Soede, SARC, Bussum / The Netherlands (2003)

ABSTRACT

In naval architecture it is common practice to create a new design by means of a transformation or a modification of an existing initial or final design. Those existing designs may be available in digital format, or on a drawing which can be digitised. The lowest common denominator of the encountered digital formats is an unconnected collection of spatial curves, which can easily be converted into a wireframe representation. In order to enable these designs to be utilised in a ship hull CAD system which is based on a Boundary Representation solid model, a method must be available which converts that wireframe into a solid model. This paper gives a short survey of existing conversion methods, and identifies a shortest path approach as most appropriate for our goal. The original shortest path method is modified for 2-connected objects, and objects with many-sided faces, which are quite common in naval architecture. Finally an application example is presented, and the approach is evaluated.