

The Development of 3D Aircraft Flight Path Models by NURBS Parametric Equations

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Abstract

There are a variety of methods for creating aircraft flight routes or predicting flight routes such as prediction by the neural network method or prediction with relative motion between positions. In this research, aircraft flight paths will be created using the Non-Uniform Rational Basic Spline parametric (NURBS) equation. The NURBS equation is a mathematical model based on spline method commonly used in various computer graphics applications which are used to create curves. The nature of an aircraft's flight path also has curves, which are suitable for creating a flight path by using the three dimensions data of the flight path to calculate the appropriate parameters for each flight path. One of the most important parameters for constructing a NURBS curve is the Control Point. To test the NURBS parametric equation, the parameters of the equation are adjusted and then the errors are compared between the obtained aircraft position data set and the curve position obtained from the NURBS equation to give the smallest error value of the curve. Then, those parameters defined as NURBS parametric equations show the flight path of the next aircraft.

Keywords : Aircraft flight path, NURBS parametric equations

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