

Computing aircraft position prediction

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Abstract— Air traffic is increasing world wide at a steady annual rate, and airport congestion is already a major issue for air traffic managers. This paper presents a model based on neural networks to predict the position of aircraft on the airport, during landing or takeoff. The same model can also be used to predict the behavior of other vehicles moving on the airport. The predictions help to detect near-collision situations earlier, giving air traffic controllers additional time to take remedial actions. The system uses the list of coordinates produced by the airport radar system, and obtains a prediction of the future position of each object. It is only necessary to store a short history of positions for each object in order to perform the estimation. This estimation has an average error comparable to the size of the airplane when the algorithm is adjusted for 20 second look ahead. The proposed model has been evaluated using data from Chicago O'Hare International Airport, which is the airport with the highest number of movements (from 2001 to 2004).

Index Terms— Airport traffic management, collision avoidance, prediction models, neural networks

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