

En-route Arrival Time Prediction using Gaussian Mixture Model

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Abstract— Accurate trajectory prediction is required to realize safe and efficient aircraft operations. In this paper, a new framework for predicting arrival time of en-route aircraft using Gaussian Mixture Model (GMM) is proposed. The proposed method fits the historical trajectory data with GMM whose variable is a set of arrival times at the significant points along a specific air route. The flight times to the defined points along the air route are computed conditioned on the observed flight times for the previous points that the aircraft has already passed by. The form of prediction output from the proposed model is the probability distribution which would increase its applicability to various fields due to its probabilistic nature. The performance of the proposed method is demonstrated by applying it to real flight data in Incheon Flight Information Region (FIR).