عنوان مقاله:

Intelligent Air Traffic Management Methods, Case Study: a Proposed Deep Learning Method for Mashhad Airport Air Traffic Management

محل انتشار:

نشریه بین المللی مهندسی حمل و نقل, دوره 10, شماره 4 (سال: 1402)

تعداد صفحات اصل مقاله: 18

نویسندگان:

Mahdi yousefzadeh aghdam - *PhD Student, Department of computer engineering, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran*

Seyed Reza Kamel Tabbakh - *Assistant Prof, Department of computer engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran*

Seyed Javad Seyed Mahdavi Chabok - *Assistant Prof , Department of computer engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran*

Maryam kheirabadi - *Assistant Prof , Department of computer engineering, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran*

خلاصه مقاله:

Air traffic management (ATM) is a set of management, analytical, and operational techniques and tools, which are used to optimize the traffic flow and exploit the existing flight system capacity. However, one of the challenges in ATM use is the prevention of flight delays. Several methods such as data mining, artificial neural network evolutionary algorithm, and fuzzy logic are available in the ATM field. But the complexity level as the number of the available categories for classification increases, making it impossible to use these algorithms in air traffic management. This study is aimed to comprehensively evaluate the techniques applied in ATM and assess the tools and criteria in this context. Also, show that the artificial neural network (ANN) and long short term memory (LSTM) algorithms are most frequently used in ATM. Then a hybrid deep learning model for Mashhad airport air traffic management systems was proposed. The analysis of the system was performed using the actual data of Mashhad Airport. Our results demonstrate that among various clustering algorithms, K-means and deep learning methods are more efficient and widely used. Evaluation criteria such as accuracy rate, delay, The Root mean square error (RMSE) and mean square error (MSE) are more commonly applied in air traffic system evaluation. The implementation of the air traffic management base on hyprid deep learning could be increase accuracy of flights control operation in airports.

کلمات کلیدی:

Data mining, Deep Network, Air Traffic Management, MSE, RMSE