

Abstract

This research focuses on analyzing the performance of Machine Learning with CART, Random Forest, and Ordinary Kriging methods. The dataset used in this research is data from the Area Traffic Control System (ATCS) of the Bandung City Transportation Agency and the Google Maps application in April 2022. The results of this study show a comparison of the performance of the CART method which produces accuracy up to 88% and uses Ordinary Kriging interpolation with the best semivariogram model in the form of a Gaussian model resulting in an RMSE of 0.898, while Random Forest produces a higher level of accuracy with an accuracy level of up to 90% and uses Ordinary Kriging interpolation with the best semivariogram model in the form of a Gaussian model resulting in an RMSE of 0.936. After getting the performance results of the two methods and getting the best semivariogram model, a classification map using Ordinary Kriging interpolation was built. The results of the classification map show that there are differences in the classification of traffic flow levels in Bandung City. With the results of the classification map that has been made, it can be concluded with the division of areas such as the northern, western, eastern, and southern parts of Bandung City. In the northern part of Bandung City, the proportion of traffic flow has a stable flow towards a controlled stable flow. Then in the western part, the proportion of traffic flow has two different flows, namely stable flow and unstable flow. While in the eastern part with the proportion of traffic flow has two flows, namely free flow and stable flow. Finally, the southern part is a road with a proportion of traffic flow dominated by unstable flow. The contribution of this research is in the form of information in the form of a classification map built with Ordinary Kriging interpolation based on the results of machine learning classification of traffic flows in Bandung City. The classification map that has been built can be used as a basis for making government policies to deal with traffic flow in Bandung City.

Keywords: Performance Analysis, Classification Map, Traffic Flow Congestion, Cart, Random Forest, Ordinary Kriging, Bandung City