

Performance Evaluation of Machine Learning for Forest Fire Modeling and Prediction

Vaidya Kalyani¹, Suryawanshi Shruti², Mulay Shraddha³, Dr. N. P. Kulkarni⁴

Students, Department of Information Technology^{1,2,3}

Guide, Department of Information Technology⁴

Smt. Kashibai Navale College of Engineering, Pune, Maharashtra, India

Abstract: Nowadays, forest fires became one of the foremost important problems that cause damage to several areas around the world. The paper displays machine learning regression techniques for predicting forest fire-prone areas. The data set used in this paper is presented within the UCI machine learning repository that consists of climate and physical factors of the Montesano's park in Portugal. This research proposes machine learning approaches linear regression, Decision Tree, Neural Network and Random Forest algorithm with data set size 517 entries and 13 features for each row. This paper uses two versions, all features are included in the first, and 70% of the features were included in the second. The paper uses a training set which is 70% of the data set, and the test set is 30% of the data set. The accuracy of the linear regression algorithm gives more accuracy than other algorithms. So we proposed a system with the help of machine learning techniques and algorithms like Linear Regression, Neural Network Logistic Regression, Decision Tree and Random Forest to predict percentage of fire occurrence based on different parameters like temperature, wind, rain and oxygen data entered by the user in the front end.

Keywords: Machine Learning, Linear Regression, Neural Network, Decision Tree, Random Forest, Forest Fire

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