

Camera Ready Summary

Conference Name	International Conference on Communication Systems
Paper ID	153
Paper Title	Assessment of River Suitability for Aquaculture Using Machine Learning Algorithms
Abstract	<p>In this paper, we examine a dataset of water samples carefully collected from rivers across India's vast landscape. Our unwavering commitment revolves around the strategic effective management of water resources which is crucial in order to quickly identify the changes in water quality. In this expanding industry of aquaculture where water quality affects the vitality of fishes, by taking a proactive approach, it is possible to mitigate environmental risks in a timely manner, which in turn reduces the potential for economic losses. In order to comprehensively assess water quality, we scrutinize a range of pivotal parameters such as the water's pH, biochemical oxygen demand (BOD), dissolved oxygen (DO), electrical conductivity (EC), nitrate nitrogen (NO3-N), and ammonium nitrogen (NH3-N). These parameters shed light on the water's acidity or alkalinity, ability to support aquatic life and nutrient content. Various machine learning algorithms were considered for this research, including the Long Short Term Memory (LSTM), Support Vector Machine (SVM), Least Squares Support Vector Machine (LSSVM), and Gradient Boosting Machine (GBM). However, the Random Forest Classifier was identified as the most accurate algorithm for water quality detection. In addition to these algorithms, other machine learning techniques were also explored to enhance the water quality detection capabilities of this study, in accurately detecting and predicting variations and anomalies in these critical water quality parameters. The findings from our study clearly demonstrate the immense potential of these algorithms in revolutionizing water quality monitoring.</p> <p>Keywords: Aquaculture, Water quality index, Water quality prediction, river water quality degradation, Random forest.</p>
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