



Trabajo Final Ingles 3 - Diego Estrada - Abstract

Water Quality Classification of the Río de la Plata

This project describes a supervised machine learning model that was developed to classify the water quality of the Río de la Plata. The model is based on physicochemical and microbiological parameters, which were collected between 2013 and 2024. The dataset, which was provided by national environmental agencies such as CIAM and also obtained from platforms like Kaggle, includes pH, turbidity and bacterial indicators. Before training, the data were preprocessed and unified into a single dataset. The model was trained using algorithms such as Random Forest, k-Neighbors and Neural Networks. Its main goal is to predict water quality categories ranging from slightly to extremely deteriorated so that environmental decisions can be supported. Although several models were tested, the best performance was achieved by an optimized neural network, which reached an accuracy of 92.5%. This model might help improve monitoring strategies in areas where water quality is a critical issue. Moreover, it could be applied to other regions like Tierra del Fuego. In conclusion, this work shows how machine learning can support sustainable development.