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Classification of Soil and Prediction of Total Nitrogen Content Present in Soil by Using Hyperspectral Imaging

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Abstract

In this paper, the focus is to design a machine learning model that will classify the type of soil and predict the value of total nitrogen (TN) content of soil for an input soil image based on hyperspectral imaging (HSI) technology. To design the model, a total of 176 soil image samples are collected, where each HSI image consists of 870–1735 nm wavelength. The samples belong to three different types of soil, i.e., alluvial soil, red soil and coastal saline soil. For selection of effective wavelengths in spectrum, successive projections algorithm (SPA) has deployed.