Analyzing Environmental Impact Using Artificial Neural Networks and Image Processing

John Balen [1]**, Lolade Nojeem** [1]**, Wilmin Bitala** [2]**, Utian Junta** [2]**, Ibrina Browndi** [2]
[1] Department of Computer Science, Rivers State University, Port Harcourt, Nigeria
[2] Department of Urban and Regional Planning, Rivers State University, Port Harcourt, Nigeria

ABSTRACT

Environmental analysis is an essential aspect of sustainable development, requiring the integration of various data sources to obtain a complete picture of the environmental impact of human activities. In this article, we propose an approach that combines artificial neural networks and image processing to analyze environmental impact. Our approach uses image processing techniques to analyze satellite imagery and extract features related to environmental impact. We then use artificial neural networks to model the relationship between these features and environmental impact. Our approach provides a comprehensive analysis of environmental impact, enabling policymakers and stakeholders to make informed decisions about sustainable development.

KEYWORDS: Environment Analysis, Artificial Neural Network, Image Processing, Environment

1.0 INTRODUCTION

Environmental impact analysis is essential for sustainable development. Traditional methods of environmental analysis rely on manual or semi-automated approaches, which can be time-consuming and error-prone. Recent advancements in artificial neural networks and image processing techniques have opened up new opportunities for environmental analysis. In this article, we propose an approach that combines these techniques to analyze environmental impact [1-17].

2.0 LITERATURE REVIEW

Several studies have used artificial neural networks to analyze environmental impact. For example, a study by projects used artificial neural networks to model the relationship between land use and water quality. The study found that artificial neural networks were effective in predicting water quality based on land use data [18-29].

Other studies have focused on the use of image processing techniques for environmental analysis. For example, a study by researchers used image processing techniques to analyze satellite imagery and identify areas of deforestation. The study found that image processing techniques were effective in identifying areas of deforestation [30-39].

3.0 RESEARCH METHODOLOGY

In this study, we collected satellite imagery for a particular region and used image processing techniques to extract features related to environmental impact, such as deforestation, land use, and vegetation cover. We then used artificial neural networks to model the relationship between these features and environmental impact, such as air quality, water quality, and biodiversity. We trained the artificial neural networks using data on environmental impact collected from the region and used the trained models to predict environmental impact for other areas.

4.0 RESULT

Our analysis showed that the combination of artificial neural networks and image processing techniques can provide a comprehensive analysis of environmental impact. The artificial neural networks were able to model the complex relationships between environmental impact and various features, providing insights into the underlying causes of environmental impact. The image processing techniques were effective in identifying areas of environmental impact, such as deforestation and land use change. Our approach enabled us to predict environmental impact for other areas, facilitating

informed decision-making about sustainable development.

5.0 CONCLUSION

In conclusion, our study shows that the combination of artificial neural networks and image processing techniques can provide a powerful tool for environmental analysis. Our approach provides a comprehensive analysis of environmental impact, enabling policymakers and stakeholders to make informed decisions about sustainable development. Our findings suggest that the use of artificial neural networks and image processing techniques should be considered in future environmental analysis efforts.

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