

DUMMY / FICTIONAL PAPER — FOR DEMONSTRATION ONLY

Machine Learning Prediction of Exoplanetary Climate Regimes from Sparse Observations

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Abstract

DUMMY PAPER. We propose a contrived machine learning framework that classifies hypothetical exoplanet climates (arid, temperate, greenhouse) from sparse features like stellar flux and estimated radius. All datasets and models are synthetic for demonstration.

Note: This document contains fictional content created for demonstration; it is not real research and is not actionable.

Introduction

Characterizing exoplanet climates with limited remote observations is a central challenge in astrobiology. This fictional study trains shallow classifiers on synthetic datasets to map observable proxies to climate labels.

Methods

A synthetic dataset of 10,000 simulated planets was generated using an invented climate emulator. Features included incident flux, planet radius, estimated albedo, and atmospheric mass proxy. A random forest classifier (mock hyperparameters) was trained and evaluated.

Results

The fabricated classifier achieved an invented accuracy of 78% on held-out synthetic data. Feature importance (mock) ranked incident flux highest, followed by atmospheric mass proxy.

Discussion

Results are illustrative only. Real exoplanet data require careful treatment of observational uncertainties and physically motivated models.

References

[1] K. Simulate, Theoretical Astrophysics Letters, 2018.