

CAP6619: Deep Learning Project proposal

Team Members:

- 1. Sai Surya
- 2. Krushal
- 3. Rakesh

Title and Citation of the Selected Research Paper:

Title: **Spatial-Spectral Transformer for Hyperspectral Image Classification**

Citation: Link to the paper: <https://doi.org/10.3390/rs13030498>

Full Citation: Xin He, Yushi Chen, & Zhouhan Lin. (2021). Spatial-Spectral Transformer for Hyperspectral Image Classification. Remote Sensing, 13(3), 498. DOI: <https://doi.org/10.3390/rs13030498>.

Introduction:

Hyperspectral image classification is an advanced technique that leverages spectral and spatial information to enhance image analysis. Traditional methods often struggle with high-dimensional data, leading to inefficiencies. The proposed study will focus on implementing a Spatial-Spectral Transformer model that effectively integrates spectral and spatial features for superior classification performance.

Number of Times the Paper Has Been Cited:

As of February 9, 2025, this paper has been cited 319 times.

Task Assignment:

Tasks	Person in Charge
Literature Review & Understanding Concepts	Sai Surya
Implementation Strategy & Feasibility Study	Krushal
Performance Evaluation & Comparative Analysis	Rakesh
Report Writing & Final Proposal Preparation	Sai Surya

Expected Outcome:

The project aims to assess the effectiveness of transformer-based approaches in hyperspectral image classification. By analyzing spectral-spatial features through transformers, we expect improved classification accuracy and reduced computational complexity compared to traditional deep learning models. The findings from this study could provide insights into better feature extraction techniques and their real-world applications in remote sensing and environmental monitoring.