Proposal Report

Introduction

This proposal addresses a knowledge gap in the field of machine learning, focusing on the integration of novel techniques to improve model efficiency in image processing. The gap arises due to the lack of comprehensive evaluation methods that adapt dynamically to new datasets.

Comparison with Existing Systems

Existing systems, such as TensorFlow's AutoML and PyTorch's Lightning Framework, provide foundational tools for image processing but lack adaptive evaluation metrics for specific datasets.

Application of Technologies and Key Pillars

This research primarily leverages machine learning, focusing on the subfield of image classification. Technologies such as convolutional neural networks (CNNs) and transfer learning models are evaluated.

High-Level System Architecture and Self-Evaluation Plan

The system architecture comprises a preprocessing module, a model training module, and an evaluation module. The preprocessing module handles data cleaning and augmentation, while the training module integrates a hybrid CNN-Transformer approach.

User and Functional Requirements

User Requirements:
- Ability to upload datasets in various formats.
- Interactive visualizations for performance monitoring.
Functional Requirements:

Work Breakdown Structure (WBS)

1. Initial Research and Gap Analysis: 2 weeks
2. Development of Preprocessing Module: 3 weeks
3. Implementation of Training Module: 4 weeks
4. Evaluation and Testing: 2 weeks

Idea Delivery, Structure, and Referencing

The proposal content is presented in a logical structure with sections clearly demarcated. Language usage is mostly accurate, though minor typographical errors exist.

References

[1] Author, 'Title of the article,' Journal Name, vol. X, no. Y, pp. ZZZ-AAA, Year.
[2] Author, 'Another reference,' Conference Name, Year.