S.Deepalakshmi

Final Project

PROJECT TITLE

CycleGAN for Domain Adaptation in Image Classification

AGENDA

1. Introduction to domain adaptation in image classification.
2. Overview of CycleGAN.
3. Dataset preparation.
4. CycleGAN implementation.
5. Adaptation of image classifier.
6. Evaluation.
7. Conclusion.

PROBLEM STATEMENT

The problem statement is about adapting a classifier trained on images from one domain (source domain) to perform well on images from a different domain (target domain) where labeled data may not be readily available. This adaptation process is crucial for real-world applications where collecting labeled data in the target domain might be expensive or impractical. The goal is to leverage techniques such as CycleGAN to bridge the domain gap and enable effective classification in the target domain using knowledge transferred from the source domain.

PROJECTOVERVIEW

Project: Domain adaptation in image classification with CycleGAN.

Objective: Enhance classifier performance in a target domain using CycleGAN without paired data.

Steps: Collect data, train CycleGAN, adapt target domain images, train classifier, evaluate performance.

End Users: Researchers, industry professionals, developers, end customers.

Outcome: Improved classifier accuracy in target domain via CycleGAN-based adaptation.

WHO ARE THE END USERS?

The end users of CycleGAN for domain adaptation in image classification include researchers, industry professionals, developers, and end customers across various fields such as computer vision, healthcare, autonomous vehicles, and e-commerce. They utilize CycleGAN to improve image classification performance across different domains, benefiting from its ability to adapt classifiers to specific environments or scenarios.

YOUR SOLUTION AND ITS VALUE PROPOSITION

The solution of domain adaptation with CycleGAN for image classification offers:

1. Improved generalization across different data distributions.
2. Reduction in labeling costs by eliminating the need for labeled data from the target domain.
3. Flexibility to adapt to various target domains without manual intervention.
4. Enhanced performance compared to traditional transfer learning methods.
5. Scalability for handling large datasets and complex tasks, suitable for enterprise-level applications.

THE WOW IN YOUR SOLUTION

"Our solution effortlessly adapts image classifiers to excel on new datasets without any labeled data from the target domain, saving time and resources while delivering unparalleled accuracy and versatility across diverse domains. It's a true game-changer in computer vision."

MODELLING

Modeling involves training two key components: the CycleGAN model, which learns domain mappings between source and target domains, and the image classifier, which is adapted using the translated images from CycleGAN to perform well on the target domain.

RESULTS

Results of domain adaptation with CycleGAN for image classification include improved accuracy, generalization across diverse datasets, reduced labeling costs, flexibility for adapting to new domains, and real-world applicability.