

Project Progress Report

Project Name: A review of GAN model-based style migration

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Course: EECE7370 Advanced Computer Vision

Project status: On track

Timeline: 10/25/2022-12/15/2022

Motivation

The seminal work of Ian et al. created a new artificial intelligence algorithm, Generative adversarial networks, to solve the generative modeling problem. It is a process of collecting training examples and generating more examples from the estimated probability distribution. Since then, GAN has become a trending topic both in academic and laboratory applications. It has been successfully applied to a variety of tasks in which Style Transfer is one of the application areas we are interested in most. In this paper, we aim to provide a comprehensive overview of several typical Style Transfer algorithms toward GAN.

Introduction

In this report, we are going to talk about the development of Style Transfer based on Generative Adversarial Networks (GAN). Style Transform refers to a class of software algorithms that manipulate digital images or videos to adopt the appearance or visual style of another image. Moreover, The basic definition of GAN is two neural networks contest with each other in the form of a zero-sum game, where one agent's gain is another agent's loss. More importantly, many researchers propose substantial theories, methods, and combined models to employ GANs to realize image transfer. Therefore, we finally decided to write a survey to review the history and development of GANs and Style Transfer.

Accomplishment

- Figure out the definition of GANs and Style Transfer with their corresponding concepts
- Review traditional technologies of Style Transfer and its development
- Clarify the appearance of GANs and the theory of applying GANs to style transfer

- Write and deploy codes of different algorithms
- Present several evaluation methods and compare different style transfer algorithms on efficiency and effects
- Summarize the future structure development trend of Computer Vision Style Transfer

Schedule

Project Timeline

Topic selection	10/25
Project Proposal	11/01
Information Collection	11/01-11/15
Data Collection	11/16-11/20
First Draft	11/20-12/05
Progress Report	12/06
Formal Report	12/06-12/10
PPT Production	12/10-12/14
Final Report	12/15

Summary

- Early development of style migration tasks
- The basic model of GAN and analysis
- The classical model of style migration based on the GAN model
- Model application and comparative analysis
- Future Development Prospect Analysis

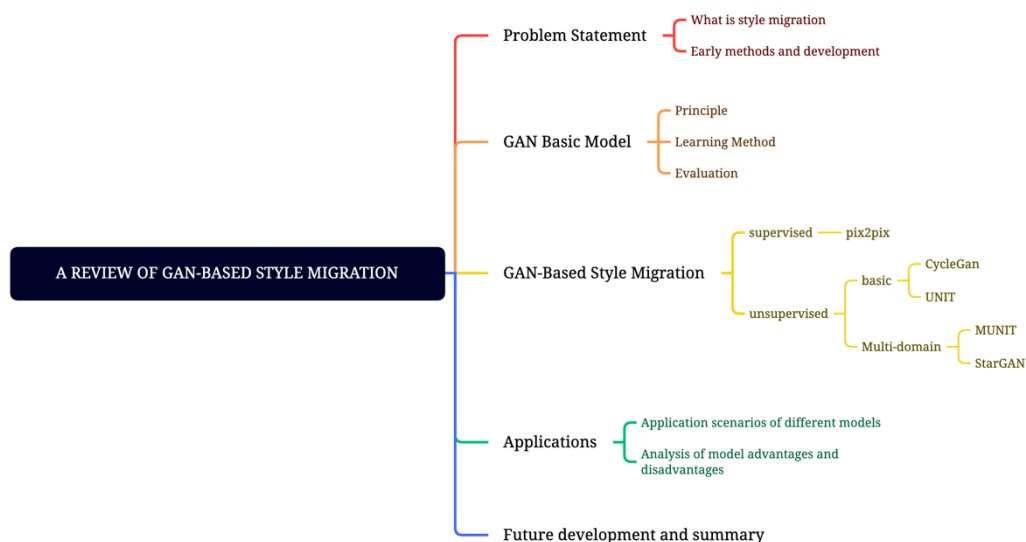


Figure1. report syllabus

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