PRARRTHANA.M.R

IMAGE to IMAGE TRANSLATION using CONDITIONAL GAN

PROJECT TITLE

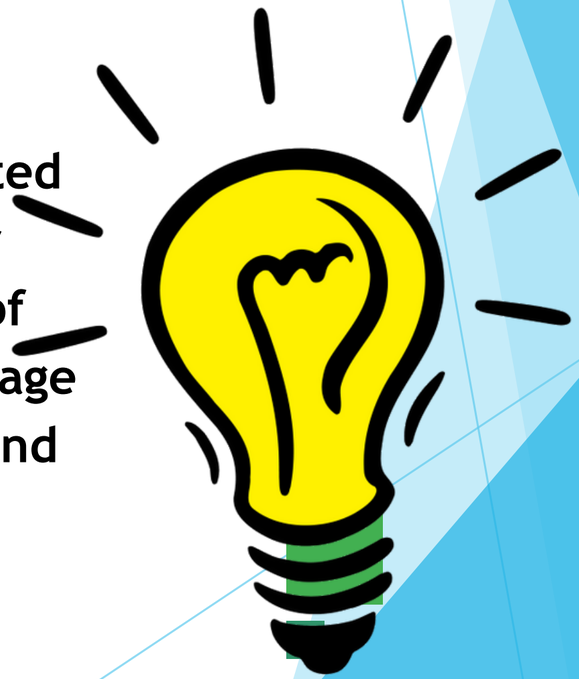
Image to image translation using Conditional GAN

AGENDA

- Import the necessary packages.
- Load the Facades Dataset
- Build an input pipeline with tf.data
- Build the generator
- Build the discriminator
- Generator loss
- Discriminator loss
- Define the optimizer and checkpoint-saver
- Generate images
- Generate some more images using test set

PROBLEM STATEMENT

Accurately translating input images from one domain to another while keeping significant semantic information is a challenging task for conditional Generative Adversarial Networks (cGANs) image-to-image translation. Nonetheless, current techniques frequently encounter difficulties in preserving intricate details, lifelike textures, and coherent global structures in many domains. Furthermore, striking a balance between variation in the generated outputs and fidelity to the original image continues to be a major issue. To solve these problems and raise the calibre and variety of translated images for a range of uses, including style transfer, image augmentation, and domain adaptation, new cGAN architectures and training methodologies must be created.



PROJECT OVERVIEW

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WHO ARE THE END USERS?

- Artists and designers
- Photographers
- Graphic designers
- Researchers and engineers
- Content creators
- Developers and software engineers
- Businesses

YOUR SOLUTION AND ITS VALUE PROPOSITION

We present a novel approach to image-to-image translation with conditional Generative Adversarial Networks (cGANs) that attempts to strike a balance between fidelity and diversity in generated images by addressing the issues of maintaining realistic textures, fine-grained details, and consistent global structures. Our proposal involves utilising cutting-edge training methodologies in conjunction with an inventive cGAN architecture to improve both the quality and diversity of translated images in many fields.

THE WOW IN YOUR SOLUTION

The WOW factor in this solution lies in its ability to seamlessly blend cutting-edge technology with practical utility, offering an unprecedented level of control, creativity, and quality in image-to-image translation tasks. Here are the standout features that make our solution truly remarkable

- Unparalleled Visual Fidelity
- Diverse and Realistic Outputs
- Robustness and Generalization
- Empowering Creativity and Efficiency
- State-of-the-Art Performance

MODELLING

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RESULTS

- Peak Signal-to-Noise Ratio (PSNR): We measure the average PSNR between the translated images and ground truth images in the target domain, indicating the level of reconstruction fidelity.
- Structural Similarity Index (SSIM): SSIM provides a metric for assessing the structural similarity between the translated and ground truth images, accounting for luminance, contrast, and structure.
- Perceptual Similarity Metrics: We leverage perceptual similarity metrics, such as feature space similarity (e.g., using pre-trained deep neural networks), to evaluate the perceptual quality of the translated images.
- We conduct user studies to gather feedback on the perceived quality and realism of the translated images generated by our model.
- Participants are asked to rate the translated images on various attributes such as visual fidelity, coherence, and diversity, providing valuable insights into the model's performance from a user perspective.

Demo Link