Stable Diffusion Lab

Aim

Generate images via the Stability AI API using SDXL.

Theory

Stable Diffusion XL (SDXL) is a latent diffusion model: text embeddings condition a U-Net denoiser inside latent space, reversed through iterative denoising and VAE decoding.

Algorithm

1. Authenticate with API key.

2. Create StabilityInference client.

3. Pass prompt, steps, cfg_scale, resolution.

4. Extract ARTIFACT_IMAGE.

5. Save/display image.

Pseudocode

api = StabilityInference(key)

resp = api.generate(prompt)

save(resp.image)

Results

High-quality 1024x1024 image.

Conclusion

SDXL enables photorealistic text-to-image generation with simple API calls.