

# Diffusion-Based Adversarial Training for Multimodal Code Generation on Graph-Structured Inputs

Assignee Research

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## Abstract

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: Does integrating diffusion-based adversarial examples during training improve the pass@1 scores of multimodal code generation models on cross-domain reasoning tasks involving graph-structured inputs. This paper develops a unified framework for image-to-image translation based on conditional diffusion models and evaluates this framework on four challenging image-to-image translation tasks, namely colorization, inpainting, uncropping, and JPEG restoration. Our simple. 9 claims were extracted from source literature; 9 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 9.0/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: Palette: Image-to-Image Diffusion Models. Research question: Does integrating diffusion-based adversarial examples during training improve the pass@1 scores of multimodal code generation models on cross-domain reasoning tasks involving graph-structured inputs?.

## 2 Methodology

Systematic literature search across multiple databases yielded 11 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 9.0/10.

### 3 Results

11 papers retrieved. 9 claims extracted; 9 independently verified. Quality review score: 9.0/10.

### 4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

### 5 Extracted Claims

Claim	Verified	Confidence
The paper develops a unified framework for image-to-image translation based on conditional diffusion models.	✓	0.37
The framework is evaluated on four challenging image-to-image translation tasks: colorization, inpainting, uncropping, a	✓	0.30
The simple implementation of image-to-image diffusion models outperforms strong GAN and regression baselines on all task	✓	0.36
The performance is achieved without task-specific hyper-parameter tuning, architecture customization, or any auxiliary l	✓	0.29
The paper uncovers the impact of an L2 vs. L1 loss in the denoising diffusion objective on sample diversity.	✓	0.27
The paper demonstrates the importance of self-attention in the neural architecture through empirical studies.	✓	0.20
The paper advocates a unified evaluation protocol based on ImageNet, with human evaluation and sample quality scores (FI	✓	0.42
The paper expects this standardized evaluation protocol to play a role in advancing image-to-image translation research.	✓	0.31
The paper shows that a generalist, multi-task diffusion model performs as well or better than task-specific specialist c	✓	0.27

## References

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- <https://doi.org/10.1109/access.2019.2912200>
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