

# AI-Assisted Creative Expression: a Case for Automatic Lineart Colorization

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**Abstract**

## Introduction

### Motivations

- Machine Creativity
- Deep Learning Breakthroughs
- Rise of Generative Neural Networks

### Problem Statement

- Black & White Lineart VS Gray Scale
- Incomplete Information Challenge fo Computer Vision
- Natural Artisitc Control Back to the User

### Contributions

- Recipe for curating datasets for the task of automatic colorization
- 3 Models exploring different aspect of the topic:
  - PaintsTorch: High Quality, User-Guided, Fast Realtime Feedback
  - StencilTorch: Human-Machine Collaboration, Human-in-the-Loop
  - StableTorch: Variance and Iterative Exploration
- A reflexion on Current Generative AI Ethical and Societal Impact in our Society

### Concerns

- Raise awareness about
  - Deepfakes
  - Model Fabulations
  - Ownership & Copyright Ambiguities
  - Biases & Discrimination
- About this work
  - Images used only for Educational and Research Purposes
  - Only describe recipes for reproducibility
  - Dataset and Weights are not Distributed (Only Code)

### Structure

- Plain Language Expanded TOC

## **Background**

**History of Artificial Intelligence**

**Neural Networks**

**Autoencoders**

**Variational Autoencoders**

**Generative Adversarial Networks**

**Denoising Diffusion Models**

**Contrib I (Find Catchy Explicit Name)****State of the Art****Method****Setup****Results****Summary**



## **Contrib II (Find Catchy Explicit Name)**

**State of the Art**

**Method**

**Setup**

**Results**

**Summary**

**Contrib III (Find Catchy Explicit Name)****State of the Art****Method****Setup****Results****Summary**

## **Contrib IV (Find Catchy Explicit Name)**

**State of the Art**

**Method**

**Setup**

**Results**

**Summary**

**Ethical and Societal Impact**

## **Conclusion**

**References**