

## **Short story assignment proposal submission:**

### **A Survey and Taxonomy of Adversarial Neural Networks for Text-to-Image Synthesis**

Text-to-image synthesis applies to optimization algorithms that, in the form of key phrases and keywords or phrases and sentences, convert written textual content into pictures with a related semantic meaning to the document. In recent work, image synthesis depends primarily on word-to-image correlation analysis in conjunction with supervised learning to identify the best adjustment of the text-matching visual content. Advancement in deep learning (DL) has provided a modern range of unsupervised deep learning approaches, especially deep generative models that can produce meaningful visual images utilizing adequately trained neural network models. The transition from computer vision-based methods to artificial intelligence (AI) based technologies generated extreme market involvement, like virtual reality, visual gaming, and computer-aided modeling, to automatically create convincing pictures from text-based representations of natural languages.

This survey is based on a paper[1] which discusses image synthesis and its problems first and afterward examines main ideas like generative adversarial networks (GANs) and deep convolutional neural network decoders (DCNNs). This survey shows how to use GANs and DCNNs to produce exciting outcomes in groups including human faces, animals, flowers, house interiors, object recreation from edge maps (games). In the end, a summary of the suggested approaches, remaining unresolved problems and potential innovations in the area of text-to-image synthesis is concluded.

The followings are the titles of the short story that I want to cover:

1. INTRODUCTION
  - 1.1. Traditional Learning-Based Text-to-image Synthesis
  - 1.2. GAN Based Text-to-image Synthesis
2. FRAMEWORKS
  - 2.1. Generative Adversarial Neural Network
  - 2.2. cGAN: Conditional GAN
  - 2.3. Simple GAN Frameworks for Text-to-Image Synthesis
  - 2.4. Advanced GAN Frameworks for Text-to-Image Synthesis
3. CATEGORIZATION of TEXT-TO-IMAGE SYNTHESIS
4. GAN Based Text-to-image Synthesis Results Comparison
5. CONCLUSION

### **Reference:**

This article is a short story of the following paper:

1. *Jorge Agnese and Jonathan Herrera and Haicheng Tao and Xingquan Zhu, "A Survey and Taxonomy of Adversarial Neural Networks for Text-to-Image Synthesis", arXiv, 2019.*