**A PROJECT REPORT**

**on**

**“****ON A COMPARATIVE ANALYSIS OF VARIOUS GAN MODELS”**

**Submitted to**

**KIIT Deemed to be University**

**In Partial Fulfilment of the Requirement for the Award of**

**BACHELOR’S DEGREE IN**

**COMPUTER SCIENCE & ENGINEERING**

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Project Guide

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**ABSTRACT**

Generative Adversarial Networks (GANs) were first introduced by Goodfellow et al. in 2014 as a framework for training deep generative models. The basic idea behind GANs is to train two neural networks, a generator, and a discriminator, to compete against each other in a two-player minimax game. The generator network takes a random noise vector as input and generates a data sample, while the discriminator network takes both real and fake data samples as input and outputs a probability value indicating whether the input is real or fake.

GANs have revolutionized the field of Deep Learning by providing a unique architecture and producing impressive. As a result, the research community is continually developing new GAN architectures, loss function optimizations, and validation metrics, making it difficult to keep up with the latest developments. This project aims to provide a general overview of GANs, including their latest architectures, validation metrics, and applications. The project will evaluate the effectiveness of different GAN variants and identify the best application areas. The ultimate goal of this survey is to summarize the evolution and performance of GANs and provide guidance for future researchers in the field.

**Keywords: General Adversarial Networks, Performance Evaluation, Deep Learning, GAN Architectures, Comparative Analysis**

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