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Harmonic Alchemy: Exploring Musical Creation through GANs

Asst. Prof Tabassum Khan, Aditi Sharma, Ayush Parate, Bhuvanesh Takod, Deepasha Khapre, Harsh Shrikundawar, Om Bangar
Artificial Intelligence Engineering
G. H Raisoni Institute of Engineering and Technology, Nagpur, India

Abstract: *The integration of cutting-edge technologies has opened up new avenues for innovation and exploration. Generative Adversarial Networks (GAN), a type of artificial intelligence, has changed the process of generating diverse and novel content. The article looked at how GANs are used in the context of music composition. The purpose of the study is to understand the potential of GANs to facilitate the creation of new and unique musical compositions. The article seeks to shed light on the power of technology in the creative field by exploring the capabilities of GANs in generating music. Despite the excitement surrounding GANs in music, it is important to acknowledge the challenges and limitations that come with their application. As we delve deeper into the realm of music creation through GANs, it is necessary to critically examine the implications, limitations, and ethical considerations that accompany this innovative approach. Our goal is to showcase the possibilities that GANs offer in music creation, but also to reflect on the nuances and complexities involved in using artificial intelligence for artistic endeavors. The field of music generation has been revolutionized by the application of Generative Adversarial Networks (GANs), which have demonstrated the ability to create new and unique compositions based on existing datasets. This review provides a comprehensive overview of the key concepts, approaches and challenges involved in music generation using GANs. First, the basics of GANs are introduced, the contentious process and the roles of generator and discriminator networks are explained. The application of GANs in music generation is then explored, highlighting various methods and architectures such as MuseGAN, Wavenet, and Pix2Pitch that have been developed to address the unique challenges of music generation. The review also discusses the importance of adapting GANs for music generation, allowing music to be generated from various information sources such as images or human sentiment. In addition, it deals with the evaluation of generated music, emphasizing the need for user studies and statistical analysis to validate the results. Finally, the review concludes with a discussion of ethical considerations and the potential impact of automated music generation on the music community. The review aims to provide a valuable resource for researchers and practitioners in the field of music generation using GANs, highlighting the potential of the technology while acknowledging the challenges and ethical implications.*

Keywords: Harmonic Alchemy, cutting-edge technology, musical creation, GANs, Technology, realm, AI, music generation, wave net, music composition, pix2pitch, generating, utilized