Extended Generative Adversarial Networks

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***Abstract*—In this work we explore extending generative adversarial networks (GAN's). Authors of previous research document GAN's with one generator and one discriminator. In this work we explore GAN's with more than one generator or discriminator, and we investigate the performance of these extended GAN's.**

***Index Terms*—generative adversarial networks, gan, neural networks, deep learning**

I. Introduction

II. Related Work

III. Chained Generative Adversarial Networks

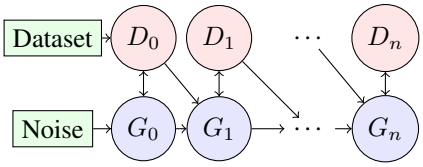

Fig. 1. Chained GANs architecture

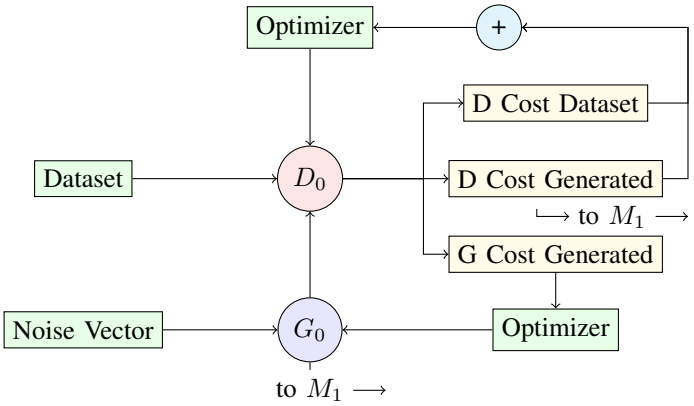

Fig. 2. Chained GANs base Model, M_0

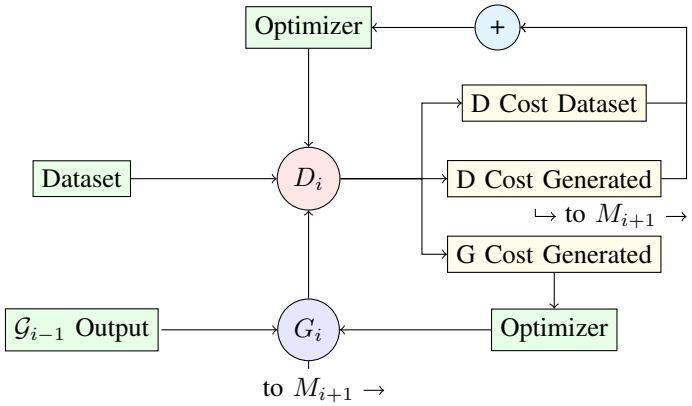

Fig. 3. Chained GANs successor model M_i

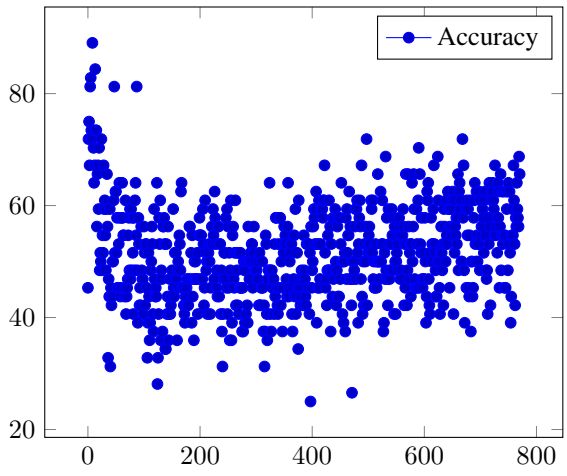

Fig. 4. Discriminator Accuracy

IV. Experiments

V. Conclusions

In this work we extend the GAN framework to include multiple generators and discriminators. We start with a typical GAN as the basis for a chain of GAN's. We then use the output of the first GAN as input to a subsequent GAN, instead of noise vectors that Goodfellow et al. [**?**], and other research typically employs. We also include the output of the previous discriminator's output as input for the generator. We extend this chain of GAN's to 6 iterations and find empirically that successive discriminators are capable of higher accuracy.

Future work: formal justification of result. Try different GAN architectures. Explore using different datasets as inputs for different iterations.

References

Please number citations consecutively within brackets [**?**]. The sentence punctuation follows the bracket [**?**]. Refer simply to the reference number, as in [**?**]—do not use "Ref. [**?**]"

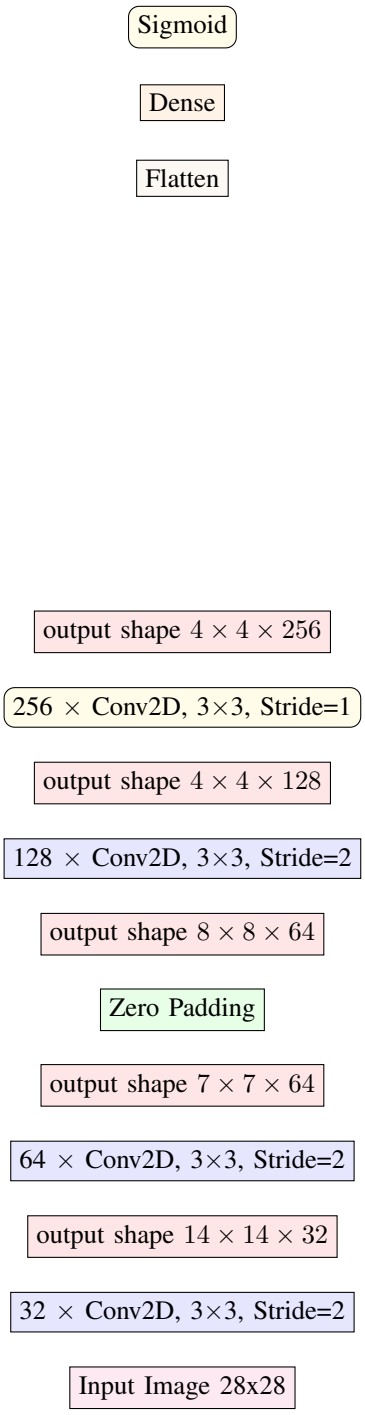

Fig. 5. Discriminator Architecture

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