

# View Reviews

## Paper ID

179

## Paper Title

Training Generative Adversarial Networks with Binary Neurons by End-to-end Backpropagation

## Track Name

Main Conference

### Reviewer #1

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## Questions

### 1. Comments to authors

The authors propose the a Generative Adversarial Network that uses binary activations in the final layer. Two binary options are provided, Deterministic Binary Neurons (DBNs) and Stochastic Binary Neurons (SBNs), proving the latter to achieve better results.

Overall, I think the idea is interesting, but the experimental results are not. The use of the MNIST dataset provide a visual representation of the generative images, but there is no real reason to use binary networks (in fact, there are multiple GAN versions in the state-of-the-art that achieve better results than this one).

The idea can be divided in two different parts: the training and the binary output. There is no novelty on the training, as it is a regular dense network with sigmoid outputs. Thus, the interest of the paper remains on the use of the binary activations. Although the results and the idea seems interesting, there is a lack of experimental results. No quantitative results are provided (like the inception score, for instance).

### 2. Decision

Weak Reject

### Reviewer #2

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## Questions

### 1. Comments to authors

Well-written paper.

Comments:

- 1) There is no explanation behind why Leaky ReLUs are used in the Discriminator instead of just ReLUs. Please explain a little bit more.
- 2) There is no mention of any limitations to the proposed method. Please elaborate on that.

### 2. Decision

Weak Accept

### Reviewer #3

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## Questions

### 1. Comments to authors

This paper proposes two binarization GANs using deterministic binary neuron and stochastic binary neuron to generate binarized MNIST. I have a few comments below.

First, I could not completely understand why modeling the discrete distribution is important from the paper.

Second, there is no robust conclusion that using the proposed binarization neurons can perform better than the sigmoid neuron.

Third, use the third person to describe your previous work is necessary for blind-review. I found that you refer to your previous work in the fifth paragraph of Section I. Fourth, the caption of Table 1 should appear above the table.

## **2. Decision**

Weak Reject