
Algorithm 1: Minibatch for WGAN

Input: x , The geometric brownian motion paths. z , noise data. D , discriminator. G , generator.

while *Max Iteration* **do**
 Sample $\{x^{(i)}\}_{i=1}^M \sim \mathbf{P}_r$ a batch from real data
 Sample $\{z^{(i)}\}_{i=1}^M \sim p(z)$ a batch from fake data
 Partition real examples into N mini batches
 for $i = 0, \dots, N$ **do**
 for $j = 0, \dots, n_{critic}$ **do**
 $D_w \leftarrow \nabla_w \frac{1}{M} [\sum_{k=1}^M D_w(x_k^{(i)}) - \sum_{k=1}^M G(z_k^{(i)})]$
 $w \leftarrow +\alpha * RMSProp(w, D_w)$ $w \leftarrow \text{clip}(w, -c, c)$
 end for
 $G_w \leftarrow \nabla_w \frac{1}{M} [\sum_{k=1}^M D_w(z_k^{(i)})]$
 end for
end while
