Overview

Stochastic Gradient Descent (SGD)

Algorithm

Update step:

$$\theta_{t+1} = \theta_t - \eta \cdot \nabla_\theta J(\theta_t) \tag{1}$$

SGD with Momentum

Algorithm

Update step:

$$v_{t,i} = \gamma \cdot v_{t-1,i} + \nabla_\theta J(\theta_{t,i}) \tag{2}$$

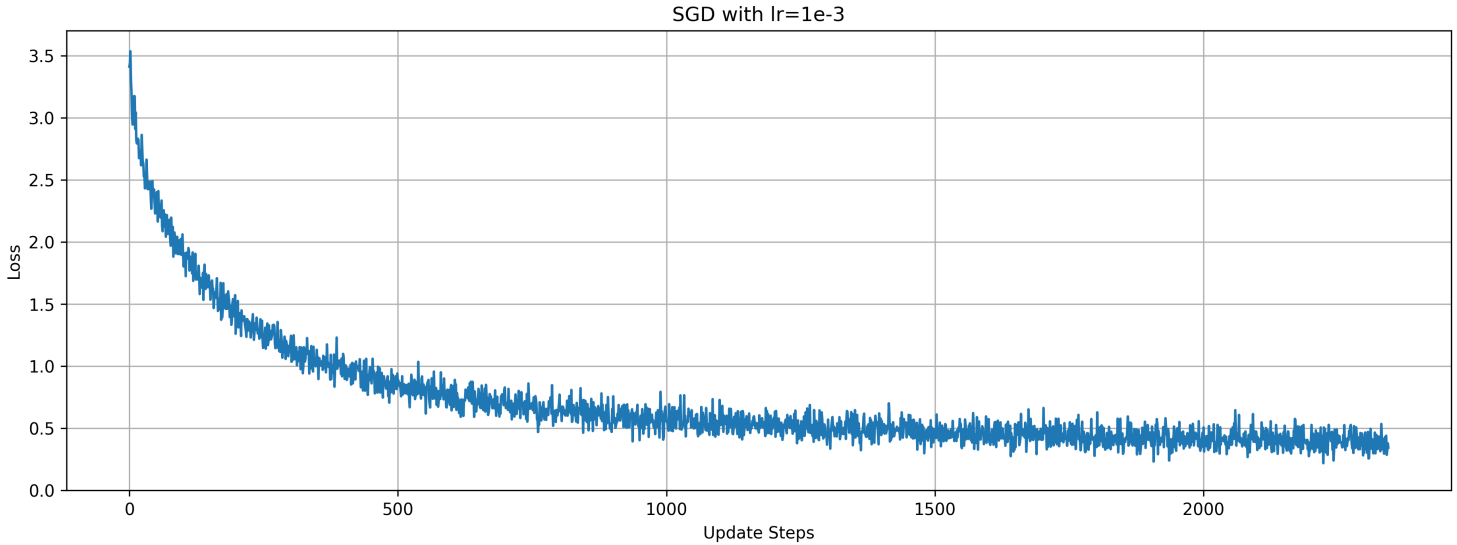
$$\theta_{t+1} = \theta_t - \eta \cdot v_{t,i} \tag{3}$$

Python Code listing in Beamer

The following Python code adds two numbers and display the result using `print()` function:

```
# This program adds two numbers
num1 = 1.5
num2 = 6.3
# Add two numbers
sum = num1 + num2
# Display the sum
print('The sum of {0} and {1} is {2}'.format(num1, num2, sum))
```

First images in beamer



Citation

An example of the `\cite` command to cite within the presentation:

This statement requires citation. [**?**]

References I

James Tobin, *Commercial banks as creators of 'money'*, no. 159.