Machine Learning Excercise 1

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$$f(x) = \begin{bmatrix} -0.041160704244956436 \\ 10.562523298395087 \\ -31.341382533745737 \\ 21.000362862248476 \end{bmatrix}^T \begin{bmatrix} x^0 \\ x^1 \\ x^2 \\ x^3 \end{bmatrix}$$

The 3-degree polynomial $f(x)$ has been computed using stochastic gradient descent algorithm using a learning rate of $\alpha = 0.2$ yielding a final error of 1.756246 after 1500 iterations.

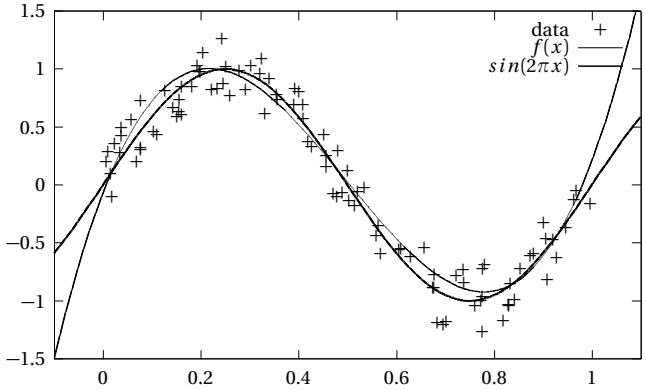

Figure 1: data points, $f(x)$, and $\sin(2\pi x)$

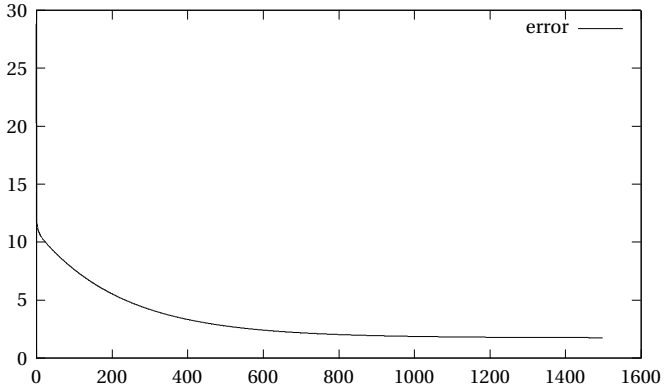

Figure 2: error after n = 1500 iterations