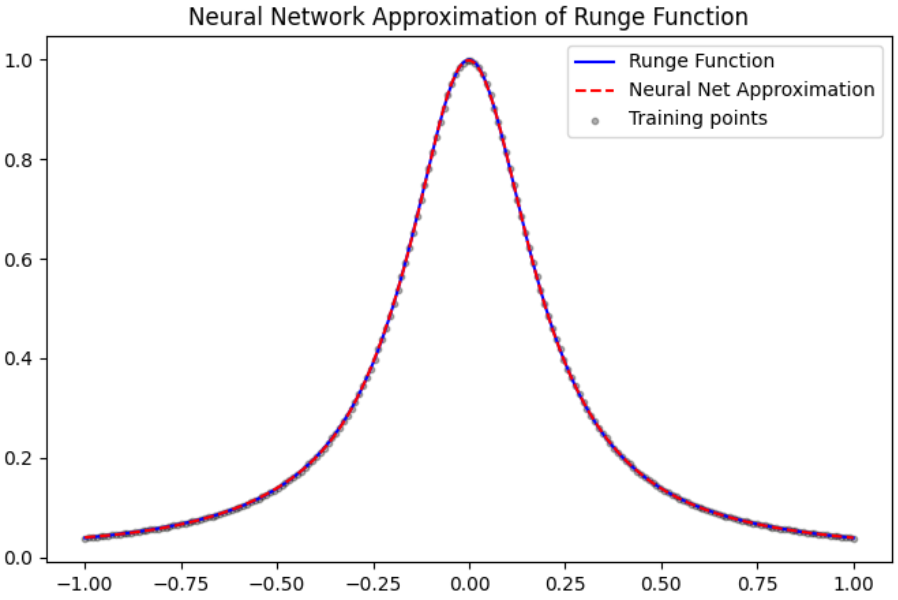
(一) Method: Feedforward Neural Network

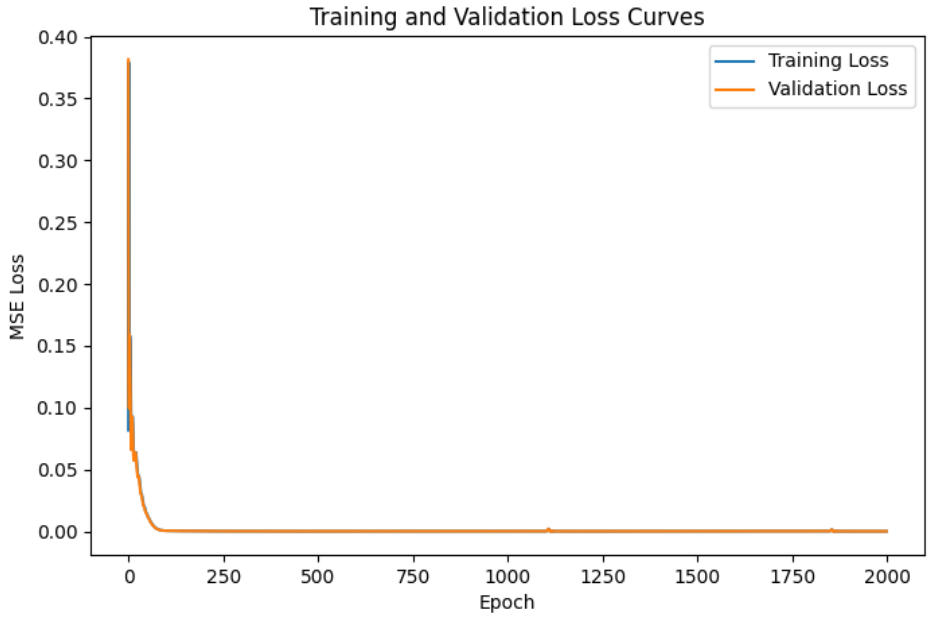
h（x）＝tanh（x）

訓練方面在-1 到 1 之間採用 200 個數據

驗證方面在-1 到 1 之間採用 100 個數據

Epoch 為 0 到 2000，每 200 計算一次 training loss 和 validation loss





Epoch 0, Train Loss: 0.081688, Val Loss: 0.381565

Epoch 200, Train Loss: 0.000130, Val Loss: 0.000129

Epoch 400, Train Loss: 0.000012, Val Loss: 0.000012

Epoch 600, Train Loss: 0.000003, Val Loss: 0.000003

Epoch 800, Train Loss: 0.000002, Val Loss: 0.000002

Epoch 1000, Train Loss: 0.000001, Val Loss: 0.000001

Epoch 1200, Train Loss: 0.000001, Val Loss: 0.000001

Epoch 1400, Train Loss: 0.000001, Val Loss: 0.000001

Epoch 1600, Train Loss: 0.000001, Val Loss: 0.000001

Epoch 1800, Train Loss: 0.000000, Val Loss: 0.000000

Final Test MSE: 5.423533e-07

Final Test Max Error: 1.928858e-03

（二）Result:

隨著 epoch 的提高，training loss 和 validation loss 也隨之下降，圖形逐漸逼近

$f(x)=\frac{1}{1+25^{x}}$ ，$x \in [-1,1]$

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