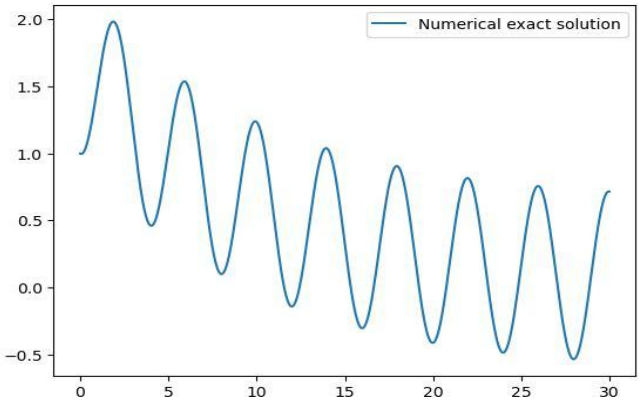
The differential equation: a tutorial example

$$\frac{dy}{dt} + 0.1t - \sin(\pi t/2) = 0$$

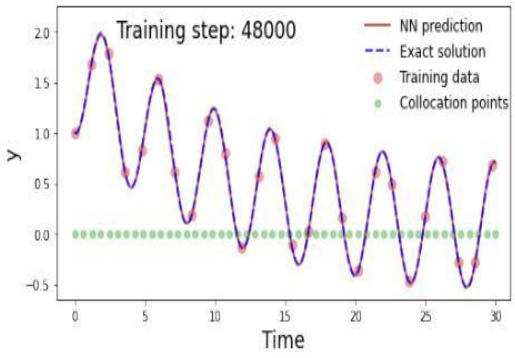
$t \in [0,30]$， using the initial condition $y_0 = y(0) = 1$.

1. Exact solution:

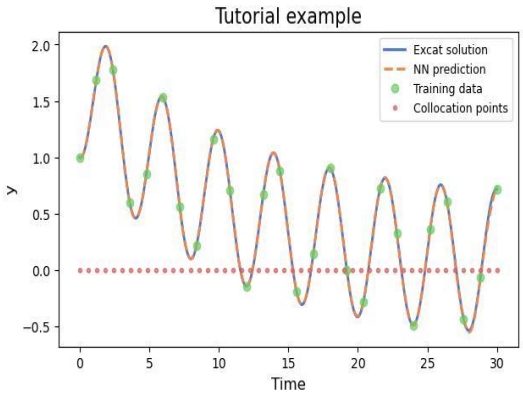


2. Paper data and myself data. (论文 Pytorch 实现，我们通过 DeepXDE 改写)

(1) N_c= 50 collocation points, and N_{data} = 26 data points

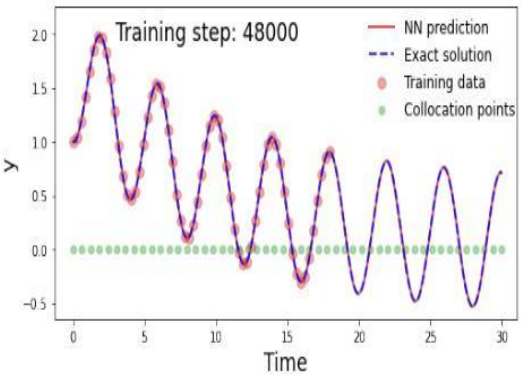


Paper

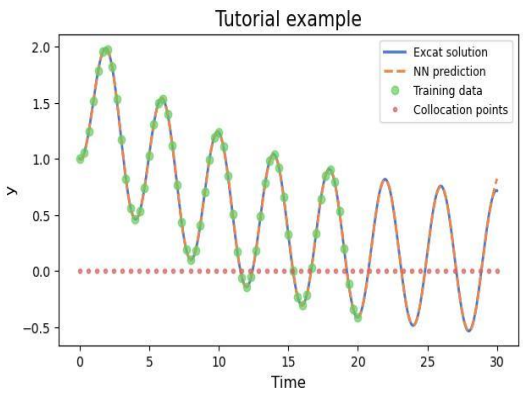


Myself

(2) N_{data} = 61 data points within a left subinterval and N_c= 50 collocation points

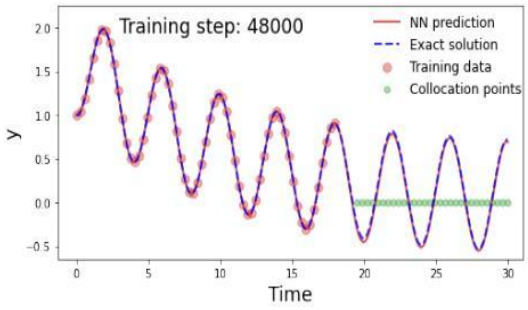


Paper



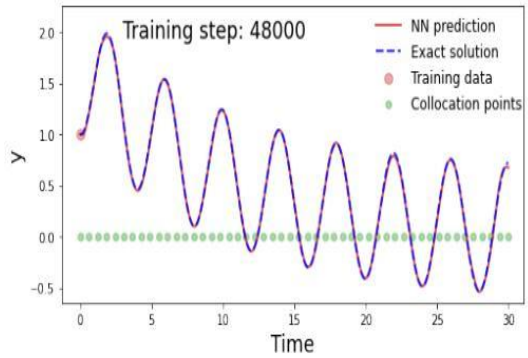
Myself

(3) N_{data} = 61data points within a left subinterval, and N_c = 30 collocation points taken within a complementary right subinterval.

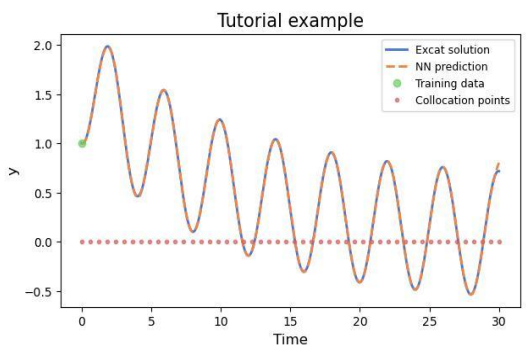


Paper

(4) N_{data} = 1 (initial condition imposed at t = 0), and N_c = 50 collocation points.



Paper



Myself