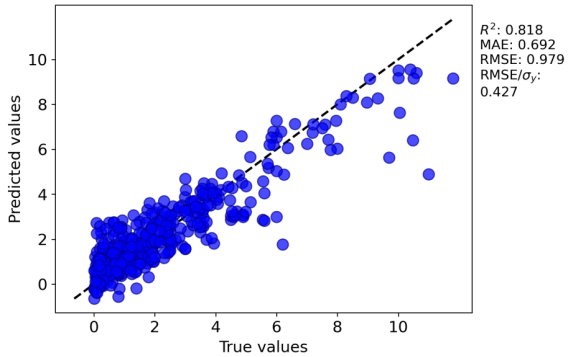
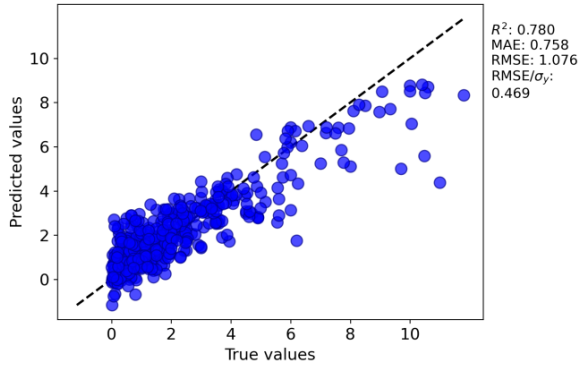
Assessment Figures

	A	B
1		learning_rate_init
2	Best Parameters	0.001325711

learning_rate_init	mean_test_score	std_test_score
0.0013257113655901081	-1.296380077	0.231447332



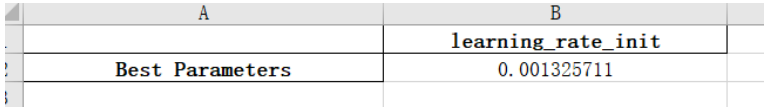


ML4ER Assignment 6

Jiahui Yang
Informatics Skunkworks
MSE 401, 3 Credits
Aug 11 2024

Progress

- Your best trained model at predicting the spiral data from the NN playground activity (also report the error metrics!)

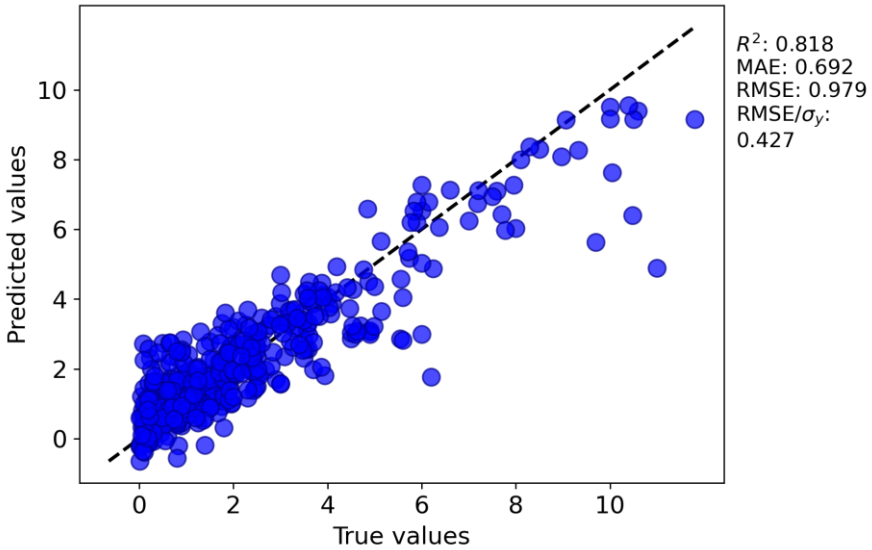


	A	B
		learning_rate_init
2	Best Parameters	0.001325711

learning_rate_init	mean_test_score	std_test_score
0.0013257113655901081	-1.296380077	0.231447332

Progress

- Your parity plot of Test data for the best hyperparameters you found before changing the model neuron structure



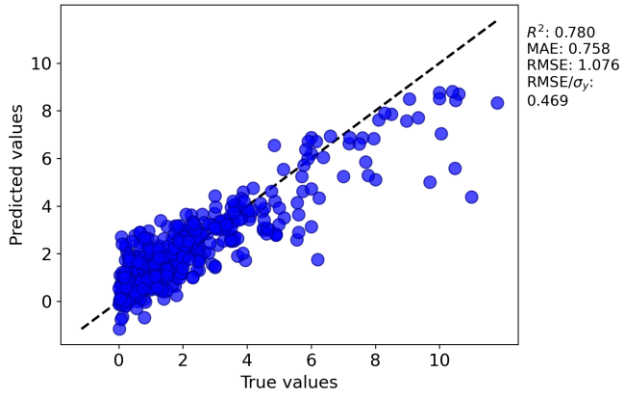
This scatter plot shows predicted values versus true values, with an R^2 of 0.818, MAE of 0.692, RMSE of 0.979, and RMSE/σ_Y of 0.427.

Progress

- The same thing after modifying neuron structure

	A	B
		hidden_layer_sizes
	Best Parameters	100

hidden_layer_sizes	mean_test_score	std_test_score
100	-1.334484359	0.227585205



This scatter plot shows predicted values versus true values, with an R^2 of 0.780, MAE of 0.758, RMSE of 1.076, and RMSE/σ_γ of 0.469.

Problems

- I have no problems in this section.

Questions

- What other similar hyperparameter optimization methods are there, and how do you decide which one to use?

Hours Summary

Date	Hours	Description of Work
08/01/2024	1 hours	Complete module 5: Hyperparameter Optimization