IV. Conclusion

An MLP-NARX prediction model for Bitcoin forecasting is presented in this paper. Objective 2 was addressed by constructing an MLP-NARX model that utilizes historical prices (opening, low, high, closing prices, and trading volume) to help it anticipate the momentum of price fluctuations and evaluate overbought or oversold conditions. Residual analysis (Objective 1) was performed using histograms, autocorrelation, and cross-correlation tests to ensure that the model was unbiased. After running the validation and fitting test, the model had successfully predicted a price one day ahead based on the high number of overlaps in the OSA prediction test. Based on the residuals histogram and correlation test's result, the model has captured most of the dynamics in the dataset by proving the randomness of the residuals. In conclusion, all the tests suggest that the model performed well with minimally correlated residuals. Finally, the PSO algorithm was used to discover optimal parameter values for the model, such as technical indicator window sizes, hidden units, and lag terms to use in the model (Objective 3).

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