

Assignment 2: Regression Losses

40 Points

Deliverables: Answers to background questions; edited Excel spreadsheet; Python code in an .ipynb file.

Data:

regressionProblem.csv: Table of reference and predicted values for a classification problem. These data are synthetic.

Variable	Description
sampleID	Unique ID for each sample
reference	Actual value
predicted	Predicted value

Background Questions

B1: Explain the difference between mean square error (MSE) and mean absolute error (MAE) regression losses in regards to the relative weight applied to samples with a large prediction error or residual. (8 Points)

Tasks (Excel):

Perform the following calculations in Excel.

T1: Calculate MSE loss. (6 Points)

T2: Calculate MAE loss. (6 Points)

T3: Calculate the Huber loss. (6 Points)

T4: Calculate the log-cosh loss. (6 Points)

Tasks (PyTorch):

Perform the following calculations using Python/PyTorch.

T5: Convert the data into PyTorch tensors and edit as necessary. Calculate the MSE and MAE losses using the PyTorch implementations to check your Excel-based calculations. (8 Points)