

Automatic Differentiation

Question 1: Auto-Differentiation by Hand

Construct an expression graph for

$$L = \frac{1}{2} \left(\tanh(wx_1 + b) + \tanh(wx_2 + b) \right)$$

and use it to compute $\frac{\partial L}{\partial w}$ and $\frac{\partial L}{\partial b}$. **Label each operation in the graph with its derivative, and label each variable (including intermediate variables) with the partial derivative of L with respect to it.** You can use intermediate variables in your answer.

Submit your answers as a PDF file in Kritik. Make sure that nothing in the file can be used to identify you. Remember, the peer-assessment process is anonymous.