

# Confidence Calibration



## What is Calibration?

If model says 80% confidence, it should be correct 80% of the time

### Temperature Scaling

Adjust logits with temperature  $T$   
 $p' = \text{softmax}(\text{logits} / T)$

### Platt Scaling

Logistic regression on outputs  
 $p' = 1 / (1 + \exp(A \cdot p + B))$

### Isotonic Regression

Non-parametric calibration  
Monotonic function fitting



## Calibration Metrics

**ECE** (Expected Calibration Error):  $|\text{confidence} - \text{accuracy}|$

**MCE** (Maximum Calibration Error):  $\max|\text{confidence} - \text{accuracy}|$

**Brier Score**: Mean squared error of probabilities