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Renyi divergence calculation (fixed code)

- Rényi divergence for 2D continuous distributions

The formula is given by

$$D_\alpha(P\|Q) = \frac{1}{\alpha - 1}\log \int_{\mathbb{R}^2} p(x,y)^\alpha q(x,y)^{1-\alpha} dxdy$$

For Monte Carlo estimation:

$$D_\alpha(P\|Q) \approx \frac{1}{\alpha - 1}\log \frac{1}{n}\sum_{i=1}^{n} \frac{p(x_i,y_i)^{\alpha-1}}{q(x_i,y_i)^{\alpha-1}}, \quad (x_i,y_i) \sim P$$

- If y is binary, then the joint distribution $p(x, y)$ can be decomposed as $p(y|x)p(x)$, and we have

$$D_\alpha(P\|Q) = \frac{1}{\alpha - 1}\log \sum_y p(y)^\alpha q(y)^{1-\alpha} \int p(x \mid y)^\alpha q(x \mid y)^{1-\alpha} dx.$$

- In implementation, we use gaussian_kde from scipy to estimate the density functions and sample from the estimated distributions to compute the divergence.