Stochastic Neighborhood Embedding

Weekly AI pills

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Summary

1. Entropy and Kullback–Leibler divergence
2. From SNE to t-SNE
3. Application for Visualization
4. Issues

t-SNE

Main Papers

Stochastic Neighbor Embedding - Hinton & Roweis - 2002

Visualizing Data using t-SNE - Maaten & Hinton - 2008

Aim : Visualize Data

$$\left.\begin{array}{l} x \in \mathbb{R}^n \\ \text{Images} \\ \text{Text} \end{array}\right\} \xrightarrow{\Phi} \mathbb{R}^2 \tag{1}$$

Entropy

Shannon Entropy

"The Entropy measures the complexity of the information"

$$H(p_1, \cdots, p_n) = -\frac{1}{n} \sum_i p_i \log_2(p_i) \tag{2}$$