$$\frac{d\pi(x_0, Y)}{dx_0} = \frac{\partial \pi}{\partial x_0}\Big|_{Y=\hat{Y}} + \frac{\partial \pi}{\partial Y} \cdot \frac{\partial Y}{\partial x_0}$$

π: Objective

x_0: Intervention / Decision

Y: Outcome

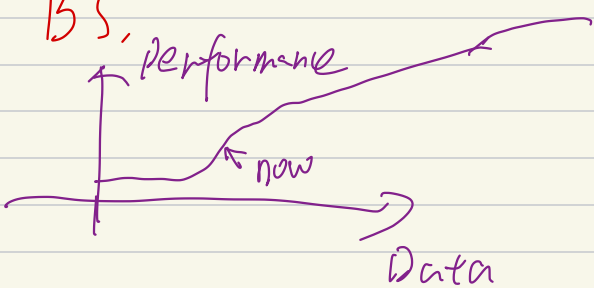
Weather Forecast / Umbrella Taking

x_0 = Rain Dance

Text Input → preprocessing → Text-representation

Prof. Philipis

1. Probabilistic / Dictionary - representation < 2012
2. DL - Based (word2vec) 2013 - 2016
3. Transformer - Based 2017 - 2022 (BERT)
4. LLM 2023+



Symbolic vs. Connectionist.