On the Information Bottleneck

Blah

1 Information Bottleneck

Let random variable X denote an input source, Z a compressed representation, and Y observed output. We assume a Markov chain $Y \leftrightarrow X \leftrightarrow Z$. That is, Z cannot directly depend on Y. Then, the joint distribution $p(X, Y, Z)$ factorizes as:

$$p(X, Y, Z) = p(Z|X, Y)p(Y|X)p(X) = p(Z|X)p(Y|X)p(X). \quad (1)$$

References