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Sample DMLR Paper

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Abstract

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Keywords: keyword one, keyword two, keyword three

1 Introduction

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$$\bar{x} = \frac{1}{n}\sum_{i=1}^{i=n} x_i = \frac{x_1 + x_2 + \ldots + x_n}{n}$$

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$$\int_0^\infty e^{-\alpha x^2} \mathrm{d}x = \frac{1}{2}\sqrt{\int_{-\infty}^\infty e^{-\alpha x^2} \mathrm{d}x \int_{-\infty}^\infty e^{-\alpha y^2} \mathrm{d}y} = \frac{1}{2}\sqrt{\frac{\pi}{\alpha}}$$

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$$\sum_{k=0}^\infty a_0 q^k = \lim_{n\to\infty} \sum_{k=0}^n a_0 q^k = \lim_{n\to\infty} a_0 \frac{1-q^{n+1}}{1-q} = \frac{a_0}{1-q}$$

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$$x_{1,2} = \frac{-b \pm \sqrt{b^2-4ac}}{2a} = \frac{-p \pm \sqrt{p^2-4q}}{2}$$

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$$\frac{\partial^2\Phi}{\partial x^2} + \frac{\partial^2\Phi}{\partial y^2} + \frac{\partial^2\Phi}{\partial z^2} = \frac{1}{c^2}\frac{\partial^2\Phi}{\partial t^2}$$

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Here is a citation Chow and Liu (1968).

Broader Impact Statement

Authors must include a Broader Impact Statement, which should provide a concise, tangible portrayal of both the potential positive and negative societal consequences of their work. We refer to the submission guidelines for further details.

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All acknowledgements go at the end of the paper before appendices and references. Moreover, you are required to declare funding (financial activities supporting the submitted work) and competing interests (related financial activities outside the submitted work). More information about this disclosure can be found on the DMLR website.

References

C. K. Chow and C. N. Liu. Approximating discrete probability distributions with dependence trees. *IEEE Transactions on Information Theory*, IT-14(3):462–467, 1968.

Appendix A.

In this appendix we prove the following theorem from Section 6.2:

Theorem *Let u, v, w be discrete variables such that v, w do not co-occur with u (i.e., $u \neq 0 \Rightarrow v = w = 0$ in a given dataset $\mathcal{D}$). Let N_{v0}, N_{w0} be the number of data points for which $v = 0, w = 0$ respectively, and let I_{uv}, I_{uw} be the respective empirical mutual information values based on the sample $\mathcal{D}$. Then*

$$N_{v0} > N_{w0} \;\Rightarrow\; I_{uv} \leq I_{uw}$$

with equality only if u is identically 0. ■

Appendix B.

Proof. We use the notation:

$$P_v(i) \;=\; \frac{N_v^i}{N}, \quad i \neq 0; \quad P_{v0} \;\equiv\; P_v(0) \;=\; 1 - \sum_{i \neq 0} P_v(i).$$

These values represent the (empirical) probabilities of v taking value $i \neq 0$ and 0 respectively. Entropies will be denoted by H. We aim to show that $\frac{\partial I_{uv}}{\partial P_{v0}} < 0$....