Computer Science > Information Theory

The memory centre

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Let $x \in \R$ be given. As we know the, amount of bits needed to binary code x with given accuracy ($h \in \R$) is approximately $ \m_{h}(x) \approx \log_{2}(\max {1, |\frac{x}{h}|}). $ We consider the problem where we should translate the origin a so that the mean amount of bits needed to code randomly chosen element from a realization of a random variable X is minimal. In other words, we want to find $a \in \R$ such that $$ \R \ni a \to \mathrm{E} (\m_{h} (X-a)) $$ attains minimum.

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