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The wrong direction of Jensen's inequality is algorithmically right

Tuesday, July 11, 2023 12:10 PM (20 minutes)

Or Zamir

Abstract: Let $\mathcal{A}$ be an algorithm with expected running time e^X, conditioned on the value of some random variable X.
We construct an algorithm $\mathcal{A}'$ with expected running time $O\left(e^{E[X]}\right)$, that fully executes $\mathcal{A}$.
In particular, an algorithm whose running time is a random variable T can be converted to one with expected running time $O\left(e^{E[\ln T]}\right)$, which is never worse than $O(E[T])$.
No information about the distribution of X is required for the construction of $\mathcal{A}'$.

Presenter: ZAMIR, Or

Session Classification: Track A-3