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Surprise and discordances

In this talk I'll explore how we can use Shannon entropy and the Surprise to quantify discordances between datasets. The Surprise is a tool based on the Kullback-Leibler divergence and offers a way to quantify discordance between datasets in multiple dimensions in parameter space. I'll analyze Supernovae, time delay gravitational lensing, BAO and CMB data for LambdaCDM model and variations with one more parameter. We'll compare both measures of discordance with the usual measure of distances between marginalized posterior distributions and see how they relate to each other in the context of the Hubble tension. Also, we'll talk about how the Surprise behaves when we analyze distributions with weak non-gaussianities, compared with an analytical solution for the Surprise for gaussian distributions.

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