

## **MLE for tensor normal models**

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In statistics, maximum likelihood estimation is a method of estimating the parameters of a probability distribution by maximizing a likelihood function, so that under the assumed statistical model the observed data is most probable. The point in the parameter space that maximizes the likelihood function is called a maximum likelihood estimate (MLE). One important question is to understand whether a given number of samples suffices to expect (almost surely) 1. a bounded likelihood function, 2. existence of an MLE and 3. existence of a unique MLE. For a collection of statistical models called Gaussian group models, connections to invariant theory, in particular the notions of stability, were discovered by Amendola, Kohn, Reichenbach and Seigal. In this talk, we will study tensor normal models, which correspond to tensor actions. Using casting transforms and results on stabilizers in general position, we completely determine for a given number of samples, whether we have almost sure boundedness of likelihood function, existence of MLE and its uniqueness. This is joint work with Harm Derksen and Michael Walter.