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Combining profile likelihood with Bayesian estimation for the Crow-AMSAA process

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Storage of spare parts is one of the basic tasks set by the industry. Mathematical models, such as Crow-AMSAA (known in the Statistical Literature as the Power-Law Nonhomogeneous Poisson Process), allow us to estimate the demand based on coming data. Unfortunately, the amount of data is limited in the case of parts with high reliability, which is why the estimation is inaccurate. Bayesian methods are one technique that allows you to improve the estimation quality. In this talk, we will show the application of the profile likelihood estimation method to Crow-AMSAA and the combination of this method with the Bayesian approach. We will indicate how in practice using even a small amount of data you can successfully use the model and improve the quality of estimation and prediction. We present a model analysis based on synthetic data and real data.
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Type of presentation

Talk

Classification

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