**PROFILE CONFIDENCE INTERVALS FOR TOXICOLOGICAL DOSE RESPONSE MODELS APPLIED TO MONARCH BUTTERFLY LARVAE**

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Dose response curve models are commonly used in toxicology studies. The well-known R package for fitting dose response curve models, *drc*, computes confidence intervals using the delta method. Delta method based confidence intervals may return values outside of a practical range. In this case, profile confidence intervals can be used. We have developed an R package, *drcMLE*, that supplements *drc* by refitting the dose response curve model using maximum likelihood estimation and returning profile likelihood confidence intervals. In this talk, we will explain our approach and demonstrate our code using the motivating dataset from a toxicology study on the application of insecticides to monarch butterfly larvae.

Presenter Bio: Katherine is a Ph.D. student in statistics at Iowa State University. Her Ph.D. research with Dr. Heike Hofmann focuses on using visualizations for the interpretation of machine learning models. She also currently works as a statistical consultant for the ISU statistics department, and she is a statistical research intern for Sandia National Labs.

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