

An Algorithm for Approximating Integrated Likelihood Functions with Applications in Meta-Analysis

A Ph.D. Dissertation Prospectus

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Introduction

The research for my dissertation involves developing a novel algorithm for numerically integrating the likelihood function of a statistical model with respect to a nuisance parameter. This prospectus aims to demonstrate how the algorithm works and explain the appeal of using an integrated likelihood function over other types of pseudolikelihood functions to make inferences about the parameter of interest in a model.

Motivation

Much of statistical inference is concerned with the estimation of parameters in a probability distribution.

What is a Likelihood Function?

What is a Pseudolikelihood Function?

The Appeal of the Integrated Likelihood

Methodology

Feasibility

Applications and Preliminary Results

References