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Spatio-Temporal Modeling for Disease Mapping

In this talk, spatio-temporal models that use conditionally autoregressive smoothing across the spatial dimension and B-spline smoothing over the temporal dimension are considered. These models fall in the class of generalized additive mixed models. The frequentist analysis of these complex models is computationally difficult. Recently developed data cloning method provides a frequentist approach to mixed models. We propose to use data cloning, which yields to maximum likelihood estimation, to conduct frequentist analysis of spatio-temporal modeling of disease ratios. The performance of the proposed approach is evaluated through a real dataset and also by a simulation study.