

# Approximate Bayesian Computation: a Conditional Density Estimation Perspective

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## **Resumo/Abstract:**

In many statistical inference problems in the sciences, the relationship between parameters of interest and observable data is complex, but accurate simulation models are available. In such situations, the complexity of the data-generation process often prevents derivation of a sufficiently accurate analytical form for the likelihood function. Hence, it is not possible to use standard Bayesian tools, because no analytical form for the posterior distribution is available. However, by taking advantage of the fact that one can simulate data sets under different parameters, it is possible to estimate the posterior distribution. Problems of this type have motivated recent interest in Approximate Bayesian Computation (ABC) methods. In this work we show how a nonparametric conditional density estimation framework can help solving several open issues that exist in the ABC literature.