

## **Longitudinal Gaussian Process Modeling in Biostatistics**

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This talk demonstrates the utilization of longitudinal Gaussian Process (GP) regression modeling in the field of Bayesian biostatistics. Additive Bayesian longitudinal GP modeling provides a flexible nonparametric framework for handling the complex covariance structures of biological data. It enables easy interpretation of covariate effects in the presence of both continuous and categorical variables, and can be extended to include parametric components. We delve into the practical aspects of GP model fitting and inference using the Stan software and related R packages. Through an application to tumor size modeling, the talk aims to expand researchers' knowledge about the variety of available modeling techniques