

## **Variable Selection and Allocation in Joint Models via Gradient Boosting Techniques**

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### *Summary*

Modeling longitudinal data (e.g., biomarkers) and risk for events separately, even though the underlying processes are related to each other, leads to loss of information and bias. Hence, the popularity of joint models for longitudinal and time-to-event-data has grown rapidly in the last few decades. However, it is quite a practical challenge to specify, to which part of a joint model the single covariates should be assigned to as this decision usually has to be made based on background knowledge. In this talk we show how recent developments from the field of gradient boosting for distributional regression can be used to construct an allocation routine allowing researchers to automatically assign covariates to the single sub-predictors of a joint model. The procedure provides several well-known advantages of model-based statistical learning tools as well as a fast performing allocation mechanism for joint models.