

# Spike-and-Slab Generalized Additive Models and Fast Algorithms for High-Dimensional Data

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- ▶ Balanced sparse penalty and smooth penalty for improved curve interpolation
- ▶ Bi-level selection for flexible linear and non-linear effect interpolation
- ▶ Optimization-based algorithms for fast computation and scalability
  - ▶ EM-Iterative Weighted Least Square algorithm allows uncertainty inference
  - ▶ Accommodates other priors: Bayesian ridge, lasso priors; spike-and-slab priors for non-sparse problems
- ▶ R package BHAM
  - ▶ Fit high-dimensional generalized additive model
  - ▶ Customizable smoothing functions, covariate adjustment without penalty
  - ▶ Ancillary functions for model set-up, summary, prediction
  - ▶ Website via [boyiguo1.github.io/BHAM](https://boyiguo1.github.io/BHAM)